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**VOLUME I OF II**

# REMEDIAL INVESTIGATION/FEASIBILITY STUDY TECHNICAL MEMORANDUM 2

BELOIT CORPORATION
BLACKHAWK FACILITY
ROCKTON, ILLINOIS

MAY 1995

*PREPARED FOR:*
BELOIT CORPORATION
*ROCKTON, ILLINOIS*

• • •

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PROJECT NO. 3856.0070

**MONTGOMERY WATSON**

# REMEDIAL INVESTIGATION/FEASIBILITY STUDY
# TECHNICAL MEMORANDUM 2

BELOIT CORPORATION
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ROCKTON, ILLINOIS

MAY 1995


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# 1

# INTRODUCTION

Technical Memorandum 2 (Tech Memo 2) describes the performance and findings of Phase 2 of the Remedial Investigation (RI). Data collected prior to initiation of the RI have been summarized in various technical documents and data collected during Phase 1 of the RI is summarized in Tech Memo 1. Source characterization, contaminant characterization and migration pathways for the site relies on data collected as part of the Phase 2, Phase 1, and earlier studies.

Section 1 provides information regarding the authorization, background, purpose, and objectives of this report. In addition, the scope of work performed for this investigation is outlined and the organization of the report is presented.

## 1.1 AUTHORIZATION AND BACKGROUND

This Remedial Investigation/Feasibility Study (RI/FS) is being conducted on behalf of Beloit Corporation by Montgomery Watson Americas, Inc. (Montgomery Watson), formerly known as Warzyn Inc. (Warzyn). Supporting data and documentation, prior to an October 3, 1994 merger between Montgomery Watson and Warzyn, included as part of Tech Memo 2, references work performed by Warzyn.

The RI/FS activities are being performed pursuant to the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA) of 1980, as amended by Superfund Amendments and Reauthorization Act (SARA) (U.S. EPA), as required by the Consent Decree (Civil Action No. 91 C 20137) dated May 8, 1991, and per the approved Illinois Environmental Protection Agency (IEPA) scope of work outlined in the site planning documents dated May 1994 (Warzyn, 1994) which includes the Quality Assurance Project Plan (QAPP) and the Health and Safety Plan (HSP). Oversight of the RI/FS is presently being conducted by Ecology and Environment, Inc. on behalf of the IEPA.

CERCLA requires that if there is a release or a substantial threat of release into the environment of substances (in conjunction with the U.S. EPA Hazard Rank Scoring System), pollutants or contaminants from a site, a preliminary determination be made as to whether the site presents, or may present, a threat to the public health or the environment. If additional action is determined to be warranted by the U.S. EPA, the agency places the site on the National Priorities List (NPL) of hazardous waste sites. Additional investigative work is then undertaken at NPL sites to identify source areas, determine potential problems, develop and evaluate possible remedial alternatives and select a remedial action based on the evaluation.

## 1.2 SCOPE OF WORK

The Work Plan (Warzyn 1994) for Phase 2 of the RI specified a sequenced approach to the investigation. The primary objectives of the Phase 2 Investigation include:

- Identification and delineation of potential volatile organic compound (VOC) source areas in and around the Beloit Corporation Plant (BCP).
- Evaluation of the Storage Yard Area (SYA) as being a VOC source area.
- Further evaluation of the Foundry Sand Disposal Area (FSDA) as being a Polynuclear Aromatic Hydrocarbon (PAH) source area.

The field work completed as part of the approved Work Plan to achieve the Phase 2 objectives included the following activities and contingency sampling as outlined below:

Source Characterization:

- Soil gas survey, which included SG300 through SG381, in and around the BCP, SYA, and Fibrous Sludge Spreading Area (FSSA). Soil gas locations SG354 through 381 were contingency samples (i.e., exceeding the minimum number specified in the Work Plan).
- Drilling and soil sampling 17 shallow soil borings (SB22 through SB38) and collecting groundwater grab samples at the water table in all borings except SB31 (which did not extend to the water table) and SB35. This activity included installation of three water table monitoring wells in soil borings SB23 (W40), SB24 (W39), and SB26 (W41). Soil borings SB31 through SB38 were contingency locations.
- Drilling and vertical sampling of seven groundwater quality borings (W30C through W36C), which included the installation of four groundwater monitoring wells (W31C, W32, W34, and W35C).
- Abandonment and replacement of three existing monitoring wells (W1 (W1R), W12 (W12R), and W4 (W26)).

- Installation of two staff gauges (SG6 and SG7).
- Monitoring well development.
- Location and elevation survey of newly installed monitoring wells and staff gauges and an elevation survey of all existing site monitoring wells.
- Groundwater level measurements.
- Hydraulic conductivity testing and analysis.
- Surface soil sampling in the FSDA, FSSA, SYA and collection of five background surface soil samples.

Contaminant Characterization:

- Screening eighty-two soil gas samples using a field GC, plus nine duplicate samples and one equipment blank sample.
- Screening eighty-one soil samples using a field GC and submitting selected samples for laboratory analysis.
- Screening fifteen water table grab samples, collected from soil borings, using a field GC.
- Forty groundwater samples were collected in a vertical sequence, during drilling of seven groundwater quality borings, and screened using a field GC. Three samples were submitted from W36C for CLP laboratory analysis.
- Groundwater sampling and analysis (Round 2).

## 1.3 REPORT ORGANIZATION

Tech Memo 2 consists of two volumes, which may be referenced by their respective contents, as follows:

| | |
|---|---|
| Volume I | Text with Tables and Drawings |
| Volume II | Appendices A through I |

A brief description of the contents of each section of this tech memo is as follows:

- Section 2 - Presents a summary of the findings and physical characteristics of the site.
- Section 3 - Presents a summary of the analytical results from sampling at the site.
- Section 4 - Presents a summary of findings from the data collected during Phase 2 of the RI.

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# 2

# FINDINGS AND PHYSICAL CHARACTERISTICS OF THE SITE

Physical characteristics such as topography, surface features, and soils were presented in Section 5 of Tech Memo 1. Physical characteristics of site geology and hydrogeology, using data collected during Phase 1 and Phase 2 of the RI, are presented in this section to describe the local setting and potential source areas.

Methods of work performed are summarized in Appendix A. Methods summarized with supporting documentation in Appendices include the following topics:

- Soil Boring Logs (Appendix B)
- Analytical Results (Appendix C)
- Borehole Geophysics (Appendix D)
- Abandonments (Appendix E)
- Well Construction (Appendix F)
- Well Development (Appendix G)
- Hydraulic Conductivity Testing (Appendix H)
- Geotechnical Testing (Appendix I)

## 2.1 GEOLOGY

The site is located over the ancestral Pecatonica/Sugar River Bedrock Valley, where it merges with the Rock River Bedrock Valley. In general, sandy-loam soils in the vicinity of the site are underlain by multiple sequences of complex glacial outwash deposits that consist primarily of stratified, fine to coarse sand, silty sand, sand and gravel, silty sand and gravel, and lacustrine clays and silts. These glacial deposits are generally between 220 and 235 ft thick and lie unconformably on the Platteville dolomite and St. Peter sandstone bedrock aquifers. Drawings F1 and F2 show soil sample locations in the SYA and FSDA, and in and around the BCP, respectively (soil boring logs are included in Appendix B). Geologic cross-sections

illustrating local subsurface geology are presented on Drawings F3 (cross-sections A-A' and B-B'), F4 (cross-sections C-C' and D-D'), and F5 (cross-sections E-E', F-F', and G-G') . Cross section location maps are included on each drawing.

Although the glacial deposits beneath the site are greater than 200 ft thick, only soils in the upper 100 ft will be discussed in this document. These glacial deposits consist of a coarse upper outwash, a fine grained middle outwash, and a coarse grained lower outwash which are bounded below by a clay deposit that appears to extend laterally beneath the site.

These four individual units are identified on the cross sections with different shading. The two coarse grained sand and sand and gravel deposits are left unshaded. The finer grained outwash (silty sand and silt soils) are shown with a light stipple pattern. The clay deposits are shown with a denser stipple pattern.

Soils in the upper 20 to 30 ft are dominated by coarse grained glacial outwash sands and gravels containing varying proportions of silt, sand, and gravel. The observed depth to the base of this surficial outwash deposit ranges from 6.5 ft in well W17 to 50.0 ft in well W27. Cross sections A-A' through G-G' show this upper outwash deposit to be uniformly distributed over the entire site except in the vicinity of well W18 and boring DB3 where the sand and gravels are shown to grade into and interstratify with fine to coarse sands. Grain-size analysis were performed on representative soil samples collected from borings conducted during Phase 2 of the RI and are summarized on Table 2-1 (laboratory results are included in Appendix I). The tests confirm the low silt and clay content of this unit (less than 10%, combined silt and clay).

The surficial outwash sand and gravel deposit is underlain by outwash deposits consisting primarily of silty fine to coarse sands containing lenses of silt and clay. The depth to the top of this fine grained unit ranges from approximately 11 ft at W33C to approximately 27 ft at W25C (DB1). Thicknesses range from approximately 13 ft at W32C to approximately 44 ft at W18. This unit is approximately 35 ft thick at the northern end of the site (GB2) and maintains its thickness to the south (W30C). The unit thins to an average of approximately 20 ft (W32C, W34C) then thickens to greater than 40 ft (W33C, W14, W18) towards the southeast. The unit thins towards the south and pinches-out at the southwestern region of the site at W19/W19B well nest.

This fine grained unit is interbedded with and underlain by a sand and, a sand and gravel outwash deposit. Depth to the base of this lower sequence of outwash deposits (defined as the top of the underlying clay - dark shading on cross sections) ranges from approximately 90 ft in boring W26C (DB4) to 56 ft in boring W33C. Cross sections A-A' through G-G' reveal that this outwash deposit extends laterally over the entire site. Grain size analyses were performed on representative soil samples collected at various depths within these deposits. The fine soil fraction is classified as SP-SM and SM. The lower sand and gravel units are classified as SP/GP with low silt and clay contents and the lower sands are classified as SP.

Underlying these glacial outwash deposits, at a depth of approximately 56 to 90 ft is a lean clay deposit. It is shown to extend laterally beneath the entire site (see cross-sections A-A' to G-G'). Although boring WW441L indicates the clay deposit may not be present, this boring was drilled for a plant production well and the drillers may not have recorded the presence of the clay at this location. Water well drillers commonly log a boring relative to the general materials drilled through rather than geologically, specifying certain soil types. The existence of the clay layer was, however, recorded at well WW441K, a short distance to the north from well WW441L.

The clay varies in thickness from approximately 10 ft at well W26C to in excess of 23 ft at W33C. The USCS classification is CL based on grain size analyses (Table 2-1). Liquid limits, generally in the range of 30 to 50, and plasticity indexes generally in the range of 20 to 30 demonstrates this soil is a relatively plastic lean clay. Rigid wall vertical permeability tests were performed on Shelby tube samples collected from borings W30C, W31C, W34C, W35C, and W36C. Permeabilities ranged from $1.3x10^{-6}$ cm/s (W34C) to $2.1x10^{-8}$ cm/s (W35C). Permeability test results are included in Appendix I. A top of clay contour map is included in this document (Drawing F6) to illustrate the topography and lateral extent of the continuous clay layer.

## 2.2 HYDROGEOLOGY

The shallow aquifer identified at this site is the lower fine to coarse grained outwash unit which is bounded above by the sand and gravel outwash deposits and below by the clay unit. This section describes the configuration of the water table that lies within this aquifer and how groundwater moves through this local aquifer system, both vertically and horizontally.

### 2.2.1 Water Levels

Measurements of depth to water and calculated surface water (staff gauges) and groundwater elevations are listed in Table 2-2. Table 2-3 contains a summary of well information including top of casing elevations, state plane coordinates, and well design information (screen lengths, depth, etc.). In general, these data indicated that water levels are elevated in late spring to early summer and decline through the year to a low point generally in late fall or early winter. Water table elevations from November 12, 1992 through January 1994 have been hand drawn and digitized and plotted as Drawings F7 through F11. For water table measurements from June 3, 1994 through December 30, 1994 (Drawings F12 through F16), a multiple point interpolation method was used. Additional data points from surface topography (i.e., wetlands) and surface water elevations, were added as appropriate.

Flowlines are defined as lines perpendicular to the groundwater contours shown on the water table maps. These flowlines are oriented towards the northwest, west, southwest, south, southeast, and east from a northeast-southwest trending groundwater high typically located in the northern portion of the site. Flowlines in the vicinity of the BCRC are typically to the northwest, from the groundwater high toward the Rock River. The groundwater high typically occurs in the vicinity of the BCP, so that the flowlines beneath the BCP are somewhat divergent. Flowlines from the western portion of the BCP are toward the west or southwest. Flowlines from the eastern portion of the BCP are primarily toward the southwest and on some dates toward the southeast. Flowlines beneath the FSDA are toward the south and southwest. Flowlines beneath the FSSA are toward the south and southwest.

Water table maps show that surface water (Rock River) stage elevations are lower than the groundwater elevations in the northern region of the site and are higher than the groundwater elevations in the southern region of the site. In the central portion of the site there is a transition from groundwater elevations being higher, to being lower than surface water stage elevations. Lower heads were observed at wells W6, W21, and W38 than at staff gauges in the Rock River.

### 2.2.2 Hydraulic Conductivity

In situ hydraulic conductivities were estimated from baildown tests conducted at 12 newly installed monitoring wells. A summary of data methods and results are contained in Appendix H. Table 2-4 is a summary of calculated hydraulic conductivities. These tests measured hydraulic conductivity in the vicinity of the well screen, and individual test results may not be representative of the entire aquifer. Data were analyzed using methods described by Bouwer and Rice (1976) and Bouwer (1989). Calculated hydraulic conductivities ranged from $2.6 \times 10^{-5}$ to $1.1 \times 10^{-1}$ cm/sec. Based on soils classified according to USCS methodology, in situ hydraulic conductivities of the more prominent lithologic types of this aquifer ranged from approximately $1 \times 10^{-3}$ cm/s for clean sands to less than $1 \times 10^{-3}$ for silts and sands with fines, and $1 \times 10^{-2}$ cm/sec for gravels, and sands and gravels.

### 2.2.3 Groundwater Gradients

**2.2.3.1 Horizontal Flow** - The water table map from water levels obtained on August 26, 1994, indicate very similar horizontal groundwater gradients as previous measurements.

**2.2.3.2 Vertical Flow** - Vertical hydraulic gradients at well nests were calculated based on groundwater level measurements made on August 26, 1994 and are presented in Table 2-5.

## 2.3 FORMER PRODUCTION WELL WW441E

WW441E was the predominant production well for the manufacturing facility for several years and is the only Beloit Corp production well screened in the shallow portion of the sand and gravel. The primary use of the well was for production water and for drinking and sanitary

uses. The pump curve for the pump installed in this well indicates it should have pumped at approximately 140 gpm. In 1985 a hour meter was installed at well WW441E. An estimate of the pumpage from well WW441E for 1985 to 1989 is based on electrical records for the time the pump was on. Prior to 1985, there was no hour meter on the wells, but a flow rate was estimated for the annual report to the state. Prior to 1977, just the total use was estimated. The following table summarizes the available information.

**Well WW441E - Pumpage Estimate**

| | Hours/Year | Gallons/Year | Average Gallons/Day |
|---|---|---|---|
| 1969 | - | 48,400,000* | - |
| 1970 | - | 36,450,000* | - |
| 1971 | - | 32,805,000* | - |
| 1972 | - | 31,642,000* | - |
| 1973 | - | Not found | - |
| 1974 | - | 32,805,000* | - |
| 1975 | - | 27,248,000* | - |
| 1976 | - | Not found | - |
| 1977 | - | 1,440,000** | - |
| 1978 | - | 1,438,600** | - |
| 1979 | - | 1,275,000** | - |
| 1980 | - | 300,000** | - |
| 1981 | - | 320,000** | - |
| 1982 | - | 315,000** | - |
| 1983 | - | 15,000,000(1) | - |
| 1984 | - | 13,950,000 | - |
| 1985 | 654 | 5,493,600 | 15,051 |
| 1986 | 242 | 2,032,800 | 5,569 |
| 1987 | 4,450 | 37,380,000 | 102,411 |
| 1988 | 3,810 | 32,004,000 | 87,682 |
| 1989 | 105 | 882,000 | 2,416 |

Out of Service in early 1989

General Notes:

1. * = Total system flow. Estimated total annual volume of WW441G and WW441E combined. Well WW441G was lead well. No information available to separate flow from each well.
2. ** = Estimated annual volume for well WW441E

Footnotes:

(1) Annual volume calculated from average hour meter readings taken in 4th quarter of 1983. On October 4, 1983 well WW441E became the lead well. On October 20, 1983, the first hour meter reading was taken.

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# CHEMICAL CHARACTERIZATION

This section provides a summary of the analytical results collected at the site during June and July 1994. Compounds detected and the concentrations found are discussed in relation to the site. Chemical characterization is a discussion of distributions of chemicals detected at the site. Samples were collected, analyzed and validated as required by the approved QAPP. Refer to Appendix C1 for the Data Quality Summary. Analytical results are included in Appendix C.

## 3.1 SAMPLING AND ANALYSIS

Groundwater monitoring wells, private drinking water wells, groundwater quality borings, soil borings, surface soil and soil gas samples were collected at the site. Soil gas samples were collected from June 3 through 7, 1994. Soil gas screening results are summarized on Table 3-1. Soil boring samples were collected from June 8 through 29, 1994. Soil and groundwater grab sample screening results are summarized on Table 3-2. Analytical results are summarized on Tables 3-3 and 3-4. Groundwater quality boring samples were collected from June 26 through July 13, 1994. Screening results are summarized on Table 3-5. Analytical results are summarized on Table 3-6. Surface soil samples were collected on July 1, 13 and 14, 1994. Analytical results are summarized on Tables 3-7 and 3-8. Groundwater samples were collected from site monitoring wells from July 25 through 28, 1994. Round 2 groundwater sampling results are summarized on Tables 3-9 through 3-11. All sampling methods were performed as specified in the Quality Assurance Project Plan (QAPP) and the Field Sampling Plan (May 1994). Private well samples were collected by the IEPA on May 11 and 12, 1994. Private well sampling results for both Phase I and II are shown on Table 3-12.

Groundwater, soil boring and surface soil (except background) samples were analyzed for TCL and TAL parameters as shown in Table 2 of the Work Plan. Selected surface soil and subsurface soil boring samples were analyzed for TOC. Results are included on Table C7. Groundwater samples were also analyzed for water quality indicator parameters.

Soil samples were collected at approximately 5-ft intervals, for field GC screening, at all soil boring locations (except SB28, SB29, and SB31). Groundwater grab samples were collected at all soil boring locations (except SB31 and SB35, see Appendix A) and screened using the field GC. Groundwater samples were collected at approximately 10-ft intervals, beginning at the water table, at groundwater quality boring locations.

## 3.2 POTENTIAL SOURCE AREAS

Several potential source areas on Beloit Corporation property were targeted for investigation during Phase 2 of the RI. This section presents a summary of analytical results relative to suspected potential source areas. The section is arranged by potential source areas as follows:

- Background Sampling
- Foundry Sand Disposal Area (FDA)
- Fibrous Sludge Spreading Area (FSSA)
- Storage Yard Area (SYA)
- Beloit Corporation Plant (BCP)

The BCP potential source areas are broken down into the following subsections:

- Erection Bay
- Chip Pad
- Former Dry Well
- Former Loading Dock
- Paint Room
- Weldery

### 3.2.1 Background Sampling

Five background surface soil samples were collected, which are located outside (north and east) of the RI boundary, at locations SS12 through SS16. The samples were analyzed for TAL parameters. Background groundwater samples were collected at wells G107, W8R, W11R, and W24 which are located upgradient of the site. Samples from background wells were analyzed for TAL, TCL, and indicator parameters. Drawing F1 shows surface soil and monitoring well locations. Inorganic and indicator parameters have been used to calculate a background baseline concentrations. Analytical results for background surface soils are summarized on Table 3-8 and background groundwater sample results are summarized on Tables 3-9 through 3-11. A discussion of background water quality is included in Section 3-3. Analytical results are included in Appendix C.

Results for inorganic compounds detected in these samples are compared to site-related surface soil and groundwater sample results by comparing the mean plus two times the standard deviation of the background sample results to the site-related sample results. Metals detected in site-related samples at concentrations greater than the mean plus two times the standard

deviation of the background samples will be considered present above background. Organic analysis and indicator results will be used to identify the presence of potential upgradient source areas. The criteria used to establish a reasonable upper limit for background concentrations represents the 95th percentile value for distribution (i.e., 95% of all values should fall below this value). Organic compounds were not detected in samples collected from the background monitoring wells.

### 3.2.2 Foundry Sand Disposal Area (FSDA)

There was no soil gas sampling proposed, therefore, no soil gas samples were collected during Phase II in the FSDA.

**3.2.2.1 Surface Soils** - Five surface soil samples were collected in the FSDA (SS2 through SS6). Results from TAL analysis indicate levels were elevated above calculated background levels for some compounds at some locations. The results elevated above calculated background (mean plus two standard deviations) are bolded on Table 3-8.

Results from TCL analysis indicate detections of VOCs include toluene in samples SS2 and SS3 at concentrations of 2 and 6 ug/kg, respectively. Detections of pesticide/PCB (Pest/PCBs) include aroclor 1260 in sample SS3 at a concentration of 42 ug/kg. SVOC analytical results indicate detections at all locations. Total PAHs ranged from 126 ug/kg (SS4D) (388 at SS4) to 12,845 ug/kg (SS2). A summary of organic detections is included in Table 3-7.

**3.2.2.2 Soil Borings** - Soil borings SB28 and SB29 were conducted on the west and east sides, respectively, of the FSDA. Samples were collected from the borings for laboratory analysis at specified depths, directly above the water table and approximately 5 ft below the water table. VOC analysis at SB28 in the sample from above the water table (sample 1, 25 ft) detected 2-butanone (8 ug/kg) and 2-hexanone (4 ug/kg). There was no sample collected from above the water table at SB29 (no recovery and spoon refusal). VOC analysis in the sample from below the water table (28 ft) detected 1,1,1-trichloroethane (2 ug/kg), and toluene (1 ug/kg). There were no Pest/PCBs detected in either boring. A summary of metals detections is included in Table 3-4.

Groundwater grab samples were collected from each boring at the water table. At SB28 1,1-DCA was BMDL and 1,2-DCA was detected at a concentration of 11 ug/L. At SB29, 1,2-DCA was detected at a concentration of 5.5 ug/L.

**3.2.2.3 Groundwater** - Well W38 was installed directly downgradient of the FSDA. A discussion of results from groundwater sampling is included in Section 3.3.

### 3.2.3 Fibrous Sludge Spreading Area (FSSA)

There was no soil gas sampling or soil borings proposed, therefore, no soil gas samples were collected or soil borings conducted during Phase II in the FSSA.

**3.2.3.1 Surface Soils** - Five surface soil samples (SS7 through SS11) were collected during Phase II. A duplicate sample was collected at SS7 (SS7 Dup). There were no VOCs or SVOCs detected. Pest/PCBs including 4,4 -DDT (SS7 - 3.2 ug/kg and SS7 Dup - 2.3 ug/kg) and aroclor-1254 (SS10 - 100 ug/kg and SS11 - 42 ug/kg) were detected.

A summary of metals detected at levels above calculated background levels are bolded on Table 3-8.

**3.2.3.2 - Groundwater** - Well W26 was installed, as a replacement for W4, creating a well nest W26, W26C. Well W12R was installed as a replacement for W12. A discussion of results from groundwater sampling is included in Section 3.3.

**3.2.4 Storage Yard Area (SYA)**

**3.2.4.1 Soil Gas** - Thirteen soil gas samples were collected from locations 341 through 347 (south end of SYA) and SG340, SG355, SG356, and SG379 through SG381 (north end of SYA). There were no detections in samples SG341 through SG347. PCE was detected at SG335 (18.2 ug/L) and SG356 (10 ug/L). PCE was BMDL in samples SG340 and SG379 through SG381. Soil gas results are summarized in Table 3-1 and locations are shown on Drawings F1 and F2.

**3.2.4.2 Surface Soil Samples** - Three surface soil samples (SS1, SB26, and SB27) were collected in the SYA. VOC analysis did not detect any compounds. SVOC analysis detected chrysene (47 ug/kg), fluoranthene (59 ug/kg) and pyrene (47 ug/kg) in SS01 (total PAH = 153 ug/kg). Pest/PCB analysis detected aroclor-1254 (54 ug/kg) in SB26 and aldrin (1.8 ug/kg) and aroclor-1254 (39 ug/kg) in SB27.

Metals analysis detected beryllium and potassium elevated above background levels at all sample locations. Metals detected above calculated background include: calcium (SB26 and SS1), cobalt (SB27), magnesium (SB26 and SS1), and selenium (SB27). A summary of detections is included on Table 3-8.

**3.2.4.3 Soil Borings** - Three soil borings (SB25, SB26, and SB27) were conducted in the SYA. Locations are shown on Drawings F1 and F2. At soil boring SB25 soil sample screening did not detect any compounds. The groundwater grab sample detected PCE at 144 ug/L and both TCE and cis-1,2-DCE at BMDL. A sample from the 10 to 12 ft interval was submitted for laboratory analysis. There were no VOCs, SVOCs or Pest/PCBs detected. Metals analytical results are summarized on Table 3-4.

**3.2.4.4 Groundwater Quality Boring** - One groundwater quality boring (W33C) was conducted in the SYA. VOCs were detected at depths of 29 ft (PCE - 9.8 ug/L), at 39 ft (PCE - 240 ug/L, 1,1-DCE - 12 ug/L, and 1,2-DCA - 80 ug/L), and at 49 ft (PCE - 5.2 ug/L). There were no detections at the 56 ft or 69 ft sample depths. The sample from 56 ft was collected at the contact between the sand and the underlying clay deposit.

**3.2.4.5 Groundwater** - One well (W41) was installed in SB26. A discussion of results from groundwater sampling is included in Section 3.3.

### 3.2.5 Beloit Corporation Plant (BCP)

**3.2.5.1 Erection Bay** - Soil gas samples were collected in and around the erection bay at locations SG309 through SG315, SG324, SG329 through SG333, SG338, SG357 through SG359, and SG364 through SG370. Detections were BMDL for PCE at locations SG309, SG310, SG357, and SG367 through SG369. The remaining soil gas results ranged from 7.9 ug/L (SG338) to 150 ug/L (SG329). Soil gas results are summarized in Table 3-1 and locations are shown on Drawings F1 and F2.

Soil borings SB30 and SB32 through SB37 were conducted in and around the erection bay. SB30 soil PCE screening results ranged from BMDL (4 to 6, 30 to 32, and 34 to 36 ft) to 71 ug/kg (17 to 19 ft) with the groundwater grab sample concentration of 90 ug/L PCE, and BMDL for TCE, cis-1,2-DCE, and 1,2-DCA. In soil boring SB32, PCE was detected at 16 ug/kg in the sample collected from 21 to 23 ft. The groundwater grab sample resulted in BMDL for PCE. Soil boring SB33 had PCE detections of 51 ug/kg (24 to 26 ft) and BMDL (30 to 32 ft). The groundwater grab sample contained 180 ug/L PCE, BMDL TCE and 120 ug/L cis-1,2-DCE. There were no VOC detections in soils at SB34 with 29 ug/L PCE detected in the groundwater grab sample. Soil boring SB35 PCE screening results for soil ranged from ND (3 to 5 ft) to 110 ug/kg (30 to 32 ft). There was no groundwater sample collected at SB35. Soil boring SB36A PCE results were BMDL in the samples collected from 18 to 20 ft and 23 to 25 ft. The groundwater grab sample contained 320 ug/L PCE. Soil boring SB37 PCE results for soil ranged from BMDL (23 to 25 ft and 28 to 30 ft) to 80 ug/kg (34 to 36 ft). The groundwater grab sample contained 1,700 ug/L PCE.

Soil samples from each boring were sent for laboratory analysis. Two samples from SB30 (17 to 19 ft [sample 1] and 20 to 22 ft [sample 2]) were sent for analysis. PCE was detected in sample 1 at 76 ug/kg and at 20 ug/kg in sample 2. Two soil samples from SB32 (9 to 11 ft [sample 1] and 21 to 23 ft [sample 2]) were submitted to the laboratory for analysis. PCE was detected at 1 ug/kg (sample 1) and 39 ug/kg (sample 2). Two soil samples from SB33 (10 to 12 ft [sample 1] and 24 to 26 ft [sample 2]) were submitted to the laboratory for analysis. Sample 2 was collected from just above the water table (possibly within the zone of water table fluctuation). PCE was detected in sample 1 (2 ug/kg) and PCE (111 ug/kg) and 1,2-DCE, total (4 ug/kg) were detected in sample 2. There were no SVOCs detected in boring SB30, SB32, or SB33. One soil sample from SB34 (8 to 10 ft) was submitted to the laboratory for analysis. There were no VOCs detected. SVOCs detected include benzo(b)fluoroanthene (42 ug/kg), chrysene (37 ug/kg), and fluoroanthene (39 ug/kg). Two soil samples from SB35 (13 to 15 ft [sample 1] and 30 to 32 ft sample 2]) were submitted to the laboratory for analysis. Sample 2 was collected from just above the water table (possibly within the zone of water table fluctuation). One duplicate sample from 13 to 15 ft was also submitted for analysis. PCE was detected at 170 ug/kg (sample 1) and 433 ug/kg (sample 2). SVOC results include bis(2-ethylhexyl)phthalate (64 ug/kg) detected in sample 2. One soil sample from SB36A (8 to 10 ft) was submitted to the laboratory for analysis. There were no VOCs detected. SVOC

results were qualified as unusable from sample 1 of SB36A. Two soil samples from SB37 (8 to 10 ft [sample 1] and 34 to 36 ft [sample 2]) were submitted to the laboratory for analysis. PCE was detected at 3 ug/kg (sample 1) and 160 ug/kg (sample 2). SVOC results were qualified as unusable for both samples from SB37.

There were no Pest/PCBs detected in soil borings SB30, SB32, SB33, SB34, SB35, SB36A, or SB37. Metals results are summarized on Table 3-4.

Two groundwater quality borings (W30C and W36C) were performed in the vicinity of the erection bay (see Drawing F2). At W30C the sample collected at 39 ft contained 200 ug/L PCE, BMDL TCE, 13 ug/L cis-1,2-DCE, and 9.6 ug/L 1,2-DCA. The sample collected at 49 ft contained 49 ug/L PCE, 12 ug/L cis-1,2-DCE, and 18 ug/L 1,2-DCA. There were no detections in the samples collected from 54, 59, and 69 ft. The sample from 69 ft was collected at the contact between the sand and clay layer.

At W36C samples were collected from 29 ft (680 ug/L PCE), 39 ft (2,000 ug/L PCE), 49 ft (8.6 ug/L PCE, BMDL cis-1,2-DCE, and 8 ug/L o-xylene), 59 ft (BMDL 1,2-DCA), 70.5 ft (7.9 ug/L 1,2-DCA), and 77.5 ft (ND). Samples were collected from 39, 70.5, and 77.5 ft and submitted for laboratory analysis. Results showed PCE at a concentration of 2,500 ug/L in the 39 ft sample and 1,1,1-TCA at a concentration of 7 ug/L in the 70.5 ft sample. No VOCs were detected at the 77.5 ft sample which was collected at the contact between the sand and clay layer. Table 3-6 summarizes the laboratory results and Table 3-5 summarizes the groundwater quality boring results.

Groundwater samples were collected from wells W23/W23B and W28, during Round 2 sampling. A discussion of results from groundwater sampling is included in Section 3.3.

**3.2.5.2 Chip Pad** - Soil gas samples were collected in the vicinity of the chip pad/storage shed area at locations SG316 through SG319, SG336, SG337, SG339, SG354, SG362, SG363, and SG371. Soil gas locations SG317, SG354, SG362, and SG371 were BMDL for PCE. PCE was detected at locations SG318 (5.1 ug/L), SG336 (44 ug/L), SG339 (8.1 ug/L), and SG363 (5.6 ug/L). TCE was detected at SG336 (BMDL).

Soil Boring SB38 was performed in the chip pad area. The sample collected from 3 to 5 ft was BMDL for PCE. The groundwater grab sample contained 12 ug/L PCE and BMDL for 1,2-DCA. The samples from 3 to 5 ft (Sample 1) and 8 to 10 ft (Sample 2) were submitted for laboratory analysis. Sample 1 contained 3 ug/kg PCE. There were no VOCs detected in sample 2. There were no Pest/PCBs detected. Metals results are summarized on Table 3-4.

Groundwater quality boring W31C was performed in the chip pad area. Samples were collected from 39 ft (ND), 49 ft (85 ug/L PCE, BMDL 1,1,-DCE and 8.1 ug/L 1,2,-DCA), 59 ft (26 ug/L PCE, BMDL 1,2-DCA) and 69 ft (ND). The 69 ft sample was collected at the contact between the sand and the underlying clay.

Well W31C was installed in boring W31C and was sampled during Round 2 sampling. Groundwater sampling analytical results are discussed in Section 3.3.

**3.2.5.3 Former Dry Well Area** - Soil gas samples SG307, SG308, SG323, SG334, SG373, SG374 and SG378 were collected in the former dry well area. Sample SG374 was BMDL for PCE. PCE was detected in samples SG323 (8.7 ug/L), SG373 (7.5 ug/L) and SG378 (6.3 ug/L).

Soil boring SB22C was performed and soil samples collected. Soil borings SB22, SB22A and SB22C were begun, but discontinued after hitting a metal obstruction at all 3 locations (possibly a former septic tank). Soil samples were collected and screened from SB22 to a depth of 14 ft. The samples collected from 3 to 5 ft and 8 to 10 ft were ND. The sample collected from 13 to 14 ft was BMDL for m+p xylene. Samples collected from SB22C were ND. The groundwater grab sample contained 6 ug/L PCE and 5.8 ug/L 1,2,-DCA.

**3.2.5.4 Former Loading Dock Area** - Soil gas samples SG300 through SG306, SG325 through SG328, SG372 and SG375 through SG377 were collected in the vicinity of the former loading dock area. Sample SG303 was BMDL. PCE was detected in samples SG304 (5.4 ug/L), SG305 (7.8 ug/L), SG325 (6.1 ug/L), SG372 (6.5 ug/L), SG375 (14 ug/L), SG376 (14 ug/L) and SG377 (6.5 ug/L).

Soil boring SB23 was performed in the former loading dock area. Samples collected did not have any VOC detections. The groundwater grab sample contained 11 ug/L 1,2-DCA.

Samples from 10 to 12 ft (sample 1) and 21.5 to 23.5 ft (sample 2) were submitted for laboratory analysis. There were no VOCs detected in sample 1. PCE was detected in sample 2 (3 ug/L). SVOC results were qualified as unusable. No Pest/PCBs were detected in either sample. Metals results are summarized in Table 3-4.

Groundwater quality boring W35C was performed in the former exterior wall vicinity and W34C was performed near the southeast corner of the BCP. Samples at W35C were collected from 34 ft (5.3 ug/L PCE), 59 ft (BMDL PCE, and 8.7 ug/L 1,2-DCA), 69 ft (9.0 ug/L 1,1-DCE and 47 ug/L 1,2-DCA) and 39, 49, 79 and 85 ft (ND). The sample from 85 ft was collected at the contact between the sand and the underlying clay deposit. Samples collected from W34C include 34 ft (20 ug/L PCE), 39 ft (19 ug/L PCE), 49 ft (7.3. ug/L PCE, BMDL 1,1-DCE, and 7.5 ug/L 1,2-DCA) and 59 ft (BMDL 1,2-DCA), and 69, 79, and 84 ft (ND). The sample at 84 ft was collected at the contact between the sand and the underlying clay deposit.

Well W41 was installed in SB23, well W35C was installed in boring W35C and well W34 was installed in boring W34C. Wells W41, W35C, and W34 were sampled during Round 2 sampling. Groundwater sampling analytical results are discussed in Section 3.3.

**3.2.5.5 Paint Room** - Soil gas samples SG320 through SB322, SG335, SG360 and SG361 were collected in the vicinity of the paint room. Samples SG360 and SG361 were BMDL for PCE and SG320 was BMDL for TCE. Sample SG320, adjacent to an exhaust vent, had a PCE detection of 38 ug/L.

Soil boring SB31 was performed directly under (as space restrictions would allow) the paint room exhaust vent. The boring was drilled to 10 ft and a sample was collected and screened using the field GC. There were no VOC detections and no sample was submitted for laboratory analysis.

**3.2.5.6 Weldery** - Soil gas samples SG348 through SG353 were collected in the weldery. Samples SG351 and SG353 were BMDL for VOCs.

Groundwater quality boring W32C was performed southeast of the weldery. Samples were collected at 34, 39, 49, 59, 69 and 79 ft. There were no VOC detections. The sample from 79 ft was collected at the contact between the sand and the underlying clay deposit.

Well W32 was installed in boring W32, which was performed approximately 10 ft from boring W32C. Well W32 was sampled during Round 2 sampling. Groundwater sampling analytical results are discussed in Section 3.3.

## 3.3 ROUND 2 SAMPLING

Groundwater samples were collected from site monitoring wells as specified in the approved work plan (Table 2) with the exception of W6, which was proposed to be sampled for full analysis. However, W6 is a PVC well and therefore, was not sampled. Wells W27, W28, and W29 were not listed in Table 2 of the approved Work Plan, however, were sampled for VOCs in accordance with the approved QAPP. Private wells in the Blackhawk Acres Subdivision were sampled by the IEPA. Detections for Rounds 1 and 2 are summarized in Table 3-12 and Round 2 analytical results are included in Appendix C.

Analytical results for groundwater monitoring wells are presented in Appendix C. Analytical results from private well sampling are included in Appendix C, as provided by the IEPA. The results of analyses for organic, inorganic, and groundwater quality indicator parameters are summarized in Tables 3-9, 3-10, and 3-11, respectively. Results from Phase I sampling are included on Tables 3-9 and 3-11, for ease in comparing groundwater quality changes between the two sampling events.

Discussion of analytical results are arranged by shallow, intermediate and deep wells. Background monitoring wells are discussed separately.

### 3.3.1 Background Sampling

Background monitoring wells consist of wells G107, W8R, W11R and W24. Results from inorganic and indicator parameter analysis are used to establish baseline (background) water quality. There were no VOCs, SVOCs, or Pest/PCBs detected in the background monitoring wells.

### 3.3.2 Shallow Wells

The following wells are considered shallow depth wells and are constructed so the well screen intercepts the water table and is set above elevation 710 ft MSL:

| | | | | | |
|---|---|---|---|---|---|
| G103S | W1R | W15 | W21 | W27 | W37 |
| G104 | W3R | W16R | W22 | W28 | W38 |
| G107 | W8R | W17 | W23 | W29 | W39 |
| G108S | W12R | W19 | W24 | W32 | W40 |
| G109 | W13 | W20R | W26 | W34 | W41 |
| G110 | | | | | |

Well W38 is included as a shallow well, although there is approximately 5 ft of water above the well screen and the screen bottom is set at elevation 707.6 ft MSL.

VOCs detected in the shallow wells include chlorinated alkanes and alkenes. Chlorinated alkanes detected include 1,1,1-TCA (5 to 18 ug/L) and chloromethane at wells W28 and W38 (11 and 81 ug/L, respectively). Chlorinated alkenes detected include PCE (3 to 4,300 ug/L) and TCE (12 ug/L - W20R and 23 ug/L- W21).

SVOCs detected in samples from the shallow wells include phenol at well W41 (2 ug/L).

There were no Pest/PCBs detected in shallow wells.

Metals that exceeded background concentrations are shown in bold on Table 3-10.

Indicator parameter results show chloride was detected above the calculated background concentration (291 mg/L) at well W15 (1,100 mg/L).

### 3.3.3 Intermediate Wells

The following wells are considered intermediate depth wells and are screened between elevations 710 to 680 ft MSL:

| | | | |
|---|---|---|---|
| G103D | W14 | W21B | W31C |
| G108D | W19B | W22B | W35C |
| W5R | W20B | W23B | |

VOCs detected as chlorinated alkanes include 1,1,1,-TCA (9 to 160 ug/L), 1,1-DCA at well W5R (3 ug/L) and chloromethane at well G108D (18 ug/L). Chlorinated alkenes detected

include PCE (3 to 1,600 ug/L) , TCE (4 to 60 ug/L), 1,1-DCE at well W21B (26 ug/L) and 1,2-DCE, total (2 to 480 ug/L).

SVOCs and Pest/PCBs were not detected in these groundwater samples.

Metals were elevated above calculated background levels for barium (74.3 ug/L) at wells W31C (96.8 ug/L) and W35C (76.4 ug/L).

Indicator parameter concentrations were not elevated above calculated background levels.

### 3.3.4 Deep Wells

The following wells are considered deep wells and are screened below elevation 680 ft MSL.

| | |
|---|---|
| W18 | W25C |
| W22C | W26C |

VOCs detected include chlorinated alkanes 1,1,-TCA at wells W18 (8 ug/L), W25C (110 ug/L), and W26C (50 ug/L). Chlorinated alkenes detected include PCE at well W25C (11 ug/L), TCE at wells W18 (36 ug/L), W25C (4 ug/L), and W26C (160 ug/L), and 1,1-DCE at wells W25C (8 ug/L) and W26C (3 ug/L).

SVOCs and Pest/PCBs were not detected in these groundwater samples.

Metals analysis was not performed on samples collected from deep wells during Round 2 sampling.

### 3.3.5 Historical VOC Concentrations

Two rounds of CLP-VOC analysis have been conducted at many wells. Table 3-9 includes data from both rounds (the -01 suffix indicates Round 1 and -02 indicates Round 2). The following wells show substantial differences between Round 1 and Round 2:

| | Round | 1,1,1-TCA | PCE | TCE |
|---|---|---|---|---|
| W05R | 1 | 45 | 12 | 3 |
| | 2 | 34 | 33 | 9 |
| W20R | 1 | 16 | ND | ND |
| | 2 | 8 | 24 | 12 |
| W21 | 1 | 22 | 31 | 19 |
| | 2 | 17 | 90 | 23 |
| W21B | 1 | 25 | ND | 2 |
| | 2 | 160 | ND | 16 |
| W25C | 1 | 10 | ND | 1 |
| | 2 | 110 | 11 | 4 |

| | | | | |
|---|---|---|---|---|
| W26C | 1 | 16 | ND | 61 |
| | 2 | 50 | ND | 160 |
| W23B | 1 | 47 | 970 | 33 |
| | 2 | ND | 1,600 | 60 |

Each of these wells, which are located on Beloit Corporation property, are downgradient, as shown on current water table maps, of the identified source area that is located on Beloit Corporation property (the vicinity of well W23). The remaining monitoring wells show very similar VOC concentrations to Round 1 (See Table 3-9).

Table 3-12 (private well sampling) includes VOC results from both Round 1 and 2 sampling.

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# 4

# SUMMARY OF FINDINGS

This section summarizes the data obtained from Phase 2 of the RI.

## 4.1 SUMMARY OF FINDINGS

### 4.1.1 Geology

Phase 2 further refined the Phase 1 geologic correlations, finding no inconsistencies from Phase 1. In general, the upper 20 to 30 ft are composed of coarse glacial outwash sands and gravels which are shown by the borings to extend laterally over the entire site. Underlying this coarse outwash is a fine grained (silty sand) glacial outwash that ranges in thickness but is generally 25 to 30 ft thick. In the vicinity of W18 the unit is approximately 44 ft thick, and pinches out in the southwestern region of the site. The fine grained unit is underlain by a sand and gravel outwash deposit that are shown by the borings to extend laterally over the entire site. The lower coarse grained unit is underlain by a clay deposit that is shown by the borings to extend across the entire site.

### 4.1.2 Hydrogeology

The Phase 2 investigation further evaluated the direction of groundwater flow through generating water table maps which indicated consistent flow directions as previous maps. The water table maps from Phase 2 (Drawings F12 through F15) were computer generated using a contouring software package which mathematically interpolates given data points. In general, groundwater flowlines (lines perpendicular to the groundwater contours) are to the northwest, west, southwest, south, southeast, and east from a northeast-southwest trending groundwater high, typically located in the northern portion of the site. Surface water (Rock River) stage elevations are lower than the groundwater elevations in the northern region of the site and are higher than the groundwater elevations in the southern region of the site.

The former Beloit production well WW441E, was located in the plant (See Drawing F-1) and operated until 1989, and was screened in the shallow sand and gravel. Although not shown by the current groundwater system beneath the site, it is probable the operation of former production well WW441E affected groundwater flow in the past. As discussed in Section 2.3, well WW441E operated at rates ranging from an average of approximately 5,500 gal/day to 102,000 gal/day.

### 4.1.3 Potential Source Areas

Soil gas, soil, and groundwater samples collected during the Phase 2 RI were screened using the field GC. Results were used to finalize proposed location of subsequent activities (i.e., soil gas results were used to finalize soil boring locations, soil boring results were used to finalize groundwater quality boring locations). Field GC results were also used to help select soil samples, collected from soil borings, for laboratory analysis. GC results also aided in determining contingency soil gas and soil boring placement.

The primary objective of the Phase II RI was to identify and characterize potential sources on the Beloit Corporation property. As a result of this investigation, several areas on Beloit Corporation property were eliminated as potential sources of VOCs. Areas eliminated as potential sources of VOCs are as follows:

- Storage Yard Area - VOCs were detected in soil gas samples, although no VOCs were detected in soil samples at the surface or at depth.

- Chip Pad - VOCs were detected in several soil gas samples, no VOCs in excess of 3 ug/kg of PCE were detected in the soils above the water table.

- Former Dry Well Area - VOCs were not detected in soil samples in areas with low VOC concentrations in soil gas.

- Former Loading Dock - A similar condition was present at the former loading dock as at the former dry well area (low VOCs in soil gas, with minimal VOCs in the soil samples).

- Paint Room - The paint room exhaust vent appears to be a minor source of PCE to surficial soils. However, this area is not considered a source of VOCs to the groundwater.

- Weldery - No soil gas samples contained any VOCs above BMQL. Therefore, no further investigation was considered necessary.

Investigation within the erection bay and in the vicinity of well W23 further refined the extent of detectable concentrations of VOCs in this area. Findings from this investigation in this area are as follows:

- Highest soil gas VOC concentrations were present at SG329 (150 ug/L).

- Soil borings indicate VOCs in soil above the water table, although at relatively low concentrations (up to 76 ug/kg at SB30, 17 to 19 ft).

- The highest VOCs in groundwater (4,300 ug/L PCE, Round 2 sampling analytical results) are present at W23 at the water table.

- VOC concentrations in groundwater decrease with depth and are not detected at the top of the clay deposit at W30C, and W36C (field screening and CLP analysis).

- VOC concentrations in groundwater extend laterally to the north and east in low concentrations (i.e., less than 30 ug/L).

Results of the Round 2 groundwater quality analyses are generally consistent with Round 1 and collectively the data indicate:

- No significant VOC concentrations were detected at the sand/clay contact at the identified source area (well W23 area) or at other locations. This indicates that no pooled DNAPL is or has been present at the base of the aquifer.

- The extent of VOC concentrations in groundwater, greater than 1,000 ug/L, were found only at W23 and water quality boring W36C. Both are located adjacent to the erection bay in the vicinity of the source of VOCs.

- Phase 2 Groundwater VOC concentrations are at similar or lower concentrations than Round 1 except downgradient of the source near well W23. In addition, wells directly downgradient and closer to the source have larger increases in VOC concentrations.

### 4.1.4 Source Characterization and Distribution

Based upon data obtained during Phase 1 and Phase 2 of the RI, all known potential VOC source areas on Beloit Corporation property have been evaluated and all but one significant source eliminated. Specifically the only significant source of VOCs at the site has been shown to be located in the area of the southernmost portion of the erection bay near well W23.

Based on Phase II data, specifics about this source area are as follows:

- VOCs in the unsaturated zone soils are present at relatively low concentrations (<100 ug/kg).

- The extent of VOCs in the unsaturated zone soils are limited in areal extent, and is confined to the southern portion of the erection bay and a short distance (<45 ft) south of it.

- VOCs in groundwater are limited to the upper portion of the shallow sand and gravel, with no VOCs detected at the contact between the sand and gravel and the underlying clay deposit.

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# TABLE 2-1

**Summary of Grain Size Analysis**
**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation/Feasibility Study - Phase II**

| Boring No. | Sample No. | Sample Type | Sample Depth | % Gravel | % Sand | % Silt + % Clay | | K | LL | PI | USC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | % Silt | % Clay | | | | |
| SB22C | 4 | SS | 20.0 - 21.8 | 17.8 | 51.9 | 30.3 | | – | – | – | SM |
| SB23 | | Drum | 0.0 - 15.0 | 52.7 | 42.5 | 4.8 | | – | – | – | GP/SP |
| | 6 | SS | 20.2 - 21.7 | 24.1 | 51.2 | 24.7 | | – | – | – | SM |
| SB24 | 13 | SS | 23.2 - 25.2 | 17.2 | 64.5 | 18.3 | | – | – | – | SM |
| SB25 | | Drum | 0.0 - 18.0 | 57.6 | 34.3 | 8.1 | | – | – | – | GP-GM |
| SB26 | | Drum | 0.0 - 18.0 | 65.8 | 26.9 | 7.3 | | – | – | – | GW-GM |
| | 5 | SS | 23.0 - 25.0 | 0.0 | 97.5 | 2.5 | | – | – | – | SP |
| SB27A | 14 | SS | 23.0 - 25.0 | 3.5 | 89.9 | 6.6 | | – | – | – | SP-SM |
| SB30 | | Drum | 6.0 - 12.0 | 62.2 | 32.4 | 5.4 | | – | – | – | GW-GM |
| SB32 | | Drum | 0.0 - 20.0 | 56.9 | 34.5 | 8.6 | | – | – | – | GP-GM |
| SB33 | | Drum | 0.0 - 14.0 | 64.8 | 31.1 | 4.1 | | – | – | – | GW |
| | 13 | SS | 24.0 - 26.0 | 9.4 | 54.6 | 21.3 | 14.7 | – | – | – | SM |
| SB34 | 5 | SS | 23.0 - 25.0 | 0.1 | 96.4 | 3.5 | | – | – | – | SP |
| SB36A | 5 | SS | 23.0 - 25.0 | 1.6 | 90.9 | 7.5 | | – | – | – | SP-SM |
| SB37 | 7 | SS | 28.0 - 30.0 | 15.3 | 50.9 | 33.8 | | – | – | – | SM |
| W30C | ST1 | ST | 69.8 - 71.8 | – | – | – | | 6.2E-08 | – | – | CL |
| W31C | ST1 | ST | 80.0 - 82.0 | – | – | – | | 2.3E-08 | – | – | CL |
| W32C | | Grab | 46.0 | 24.1 | 65.6 | 10.3 | | – | – | – | SP-SM |
| | | Grab | 64.0 | 1.9 | 92.7 | 5.4 | | – | – | – | SP-SM |
| W33C | | Grab | 34.0 | 0.0 | 10.1 | 39.6 | 50.3 | – | 29 | 14 | CL |
| | | Grab | 50.0 | 0.0 | 89.4 | 10.6 | | – | – | – | SP-SM |
| | | Grab | 63.0 | 0.0 | 0.6 | 37.4 | 62.0 | – | 36 | 20 | CL |
| W34C | | Grab | 79.0 | 0.0 | 86.1 | 13.9 | | – | – | – | SM |
| | ST1 | ST | 84.0 - 85.9 | | | | | 1.3E-06 | – | – | CL |
| W35C | | Grab | 83.0 | 3.0 | 94.7 | 2.3 | | – | – | – | SP |
| | ST1 | ST | 85.0 - 87.0 | | | | | 2.1E-08 | – | – | CL |
| W36C | | Grab | 69.0 | 0.0 | 98.9 | 1.1 | | – | – | – | SP |
| | ST1 | ST | 79.5 - 81.5 | | | | | 5.0E-08 | – | – | CL |
| W37 | 4 | SS | 20.0 - 21.0 | 52.9 | 44.4 | 2.7 | | – | – | – | GW/SW |
| GB2 | 4 | SS | 20.0 - 22.0 | 9.0 | 56.9 | 20.8 | 13.3 | – | – | – | SM |
| | 7 | SS | 35.0 - 37.0 | 15.9 | 48.5 | 35.6 | | – | – | – | SM |
| | 9 | SS | 45.0 - 47.0 | 6.4 | 58.0 | 35.6 | | – | – | – | SM |
| | 10 | SS | 50.0 - 52.0 | 0.0 | 92.0 | 8.0 | | – | – | – | SP-SM |

Notes:
K = Vertical Hydraulic Conductivity (Laboratory rigid wall permeability test)
LL = Liquid Limit
PI = Plasticity Index
SS = 3" Split Spoon
ST = 3" Shelby Tube
Grab = Grab sample as cutting exited the drill rig cyclone
Drum = Auger cuttings

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**TABLE 2-2**

# Water Level Summary
## Beloit Corporation - Blackhawk Facility
## Remedial Investigation / Feasibility Study

| Well ID | Elevation SWL 11-12-92 (ft MSL) | Elevation SWL 3-9-93 (ft MSL) | Elevation SWL 5-26-93 (ft MSL) | Elevation SWL 8-12-93 (ft MSL) | Elevation SWL 1-24-94 (ft MSL) | Elevation SWL 6-3-94 (ft MSL) | Elevation SWL 6-22-94 (ft MSL) | Elevation SWL 8-26-94 (ft MSL) | Elevation SWL 10-28-94 (ft MSL) | Elevation SWL 12-30-94 (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|---|
| W1 | 726.97 | 727.73 | 730.18 | 730.65 | 728.12 | 727.89 | ABD | ABD | ABD | ABD |
| W1R | NA | NA | NA | NA | NA | NA | 728.67 | 727.53 | 728.01 | 728.00 |
| W2 | 724.00 | 726.55 | 730.06 | 731.13 | 725.26 | 725.71 | 725.34 | 724.18 | 724.53 | 725.03 |
| W3R | 722.46 | 723.45 | 726.60 | 726.91 | 723.24 | 723.59 | 723.33 | 722.17 | 722.78 | 722.75 |
| W4 | Dry | Dry | 725.87 | 726.72 | DRY | DRY | ABD | ABD | ABD | ABD |
| W5R | 722.53 | 723.44 | 726.51 | 726.90 | 723.23 | 723.49 | 723.27 | 722.20 | 722.75 | 722.71 |
| W6 | 726.04 | 726.72 | 728.02 | 727.64 | 725.83 | 725.46 | 725.28 | 724.77 | 725.25 | 725.74 |
| W7 | 728.15 | 728.75 | 731.91 | 732.58 | 728.96 | 728.96 | 728.88 | 728.33 | 728.20 | 728.51 |
| W8R | 728.11 | 729.03 | 731.32 | 733.60 | 731.33 | 730.66 | 730.52 | 729.04 | 729.51 | 729.24 |
| W9 | 727.39 | 728.65 | 733.16 | 733.82 | 729.12 | 729.04 | 728.75 | 728.04 | 728.06 | 728.29 |
| W10 | 727.41 | 728.66 | 733.02 | 733.71 | 729.13 | 725.86 | 728.75 | 728.05 | 728.05 | 728.30 |
| W11R | 728.11 | 729.04 | 731.32 | 733.57 | 731.33 | 730.67 | 730.51 | 729.03 | 729.52 | 729.23 |
| W12 | 722.83 | 724.01 | 727.52 | 728.40 | 724.01 | 724.35 | ABD | ABD | ABD | ABD |
| W12R | NA | NA | NA | NA | NA | NA | 724.10 | 722.73 | 723.32 | 723.58 |
| W13 | 726.59 | 728.83 | 732.29 | 733.33 | 728.04 | 728.01 | 727.99 | 727.56 | 727.02 | 727.38 |
| W14 | 726.25 | 727.76 | 731.72 | 732.90 | 727.97 | 727.82 | 727.58 | 726.98 | 726.85 | 726.78 |
| W15 | 728.42 | 729.80 | 732.44 | 733.07 | 730.19 | 730.07 | 729.78 | 728.56 | 729.08 | 729.14 |
| W16R | 727.91 | 729.07 | 732.11 | 733.06 | 730.08 | 729.79 | 729.56 | 728.32 | 728.75 | 728.69 |
| W17 | 727.96 | 726.45 | 728.30 | 727.86 | 725.82 | 725.69 | 726.28 | 725.02 | 725.55 | 725.71 |
| W18 | 722.74 | 724.17 | 727.76 | 728.74 | 723.99 | 724.41 | 723.68 | 723.01 | 723.35 | 723.52 |
| W19 | 721.22 | 722.02 | 725.42 | 725.83 | 721.91 | 722.11 | 721.93 | 721.00 | 721.46 | 721.25 |
| W19B | 721.46 | 722.25 | 725.63 | 726.03 | 722.14 | 722.12 | 721.92 | 721.01 | 721.46 | 721.26 |
| W20R | 723.28 | 724.24 | 726.99 | 727.13 | 723.85 | 724.13 | 723.88 | 722.78 | 723.42 | 724.37 |
| W20B | 723.29 | 724.20 | 727.02 | 727.28 | 723.86 | 724.10 | 723.87 | 722.83 | 723.40 | 722.92 |
| W21 | 723.98 | 725.02 | 728.02 | 728.45 | 724.67 | 724.94 | 724.64 | 723.45 | 724.10 | 724.27 |
| W21B | 724.05 | 724.96 | 727.73 | 728.07 | 724.60 | 724.84 | 724.60 | 723.54 | 724.12 | 724.27 |
| W22 | 724.31 | 725.88 | 729.85 | 731.25 | 725.42 | 725.87 | 725.53 | 724.35 | 724.77 | 725.25 |
| W22B | 724.07 | 725.77 | 729.52 | 730.62 | 725.29 | 725.59 | 725.29 | 724.10 | 724.51 | 724.91 |
| W22C | 723.65 | 725.07 | 728.68 | 729.63 | 724.82 | 725.16 | 724.84 | 723.62 | 724.10 | 724.42 |
| W23 | 727.44 | 728.04 | 731.34 | 732.02 | 728.04 | 728.27 | 727.93 | 727.66 | 727.54 | 728.11 |
| W23B | 727.10 | 727.85 | 731.10 | 731.63 | 727.93 | 727.86 | 727.60 | 727.17 | 727.61 | 727.56 |
| W24 | 727.83 | 728.78 | 731.75 | 732.70 | 730.00 | 729.71 | 729.55 | 728.34 | 728.71 | 727.62 |
| W25C | 722.41 | 723.31 | 726.41 | 726.83 | 723.13 | 723.44 | 723.21 | 722.15 | 722.68 | 722.65 |
| W26 | NA | NA | NA | NA | NA | NA | 722.49 | 721.33 | 721.71 | 721.63 |
| W26C | 721.37 | 722.31 | 725.85 | 726.66 | 722.48 | 722.77 | 722.53 | 721.46 | 721.81 | 721.73 |
| W27 | 726.42 | 728.07 | 732.45 | 733.82 | 728.73 | 728.40 | 728.19 | 727.34 | 727.38 | 727.38 |
| W28 | 728.94 | 728.98 | 732.61 | 732.91 | NR | 729.55 | 729.56 | 728.92 | 728.70 | 729.38 |
| W29 | 720.36 | 721.55 | 725.62 | 727.12 | 722.13 | 723.44 | 723.20 | 722.16 | 722.34 | 722.25 |
| W31C | NA | NA | NA | NA | NA | NA | NA | 727.65 | 727.60 | 727.92 |
| W32 | NA | NA | NA | NA | NA | NA | NA | 727.80 | 727.69 | 728.03 |
| W34 | NA | NA | NA | NA | NA | NA | NA | 727.94 | 728.36 | 728.13 |
| W35C | NA | NA | NA | NA | NA | NA | NA | 727.85 | 727.86 | 728.13 |
| W37 | NA | NA | NA | NA | NA | NA | NA | 727.83 | 727.90 | 727.92 |
| W38 | NA | NA | NA | NA | NA | NA | NA | 723.19 | 723.83 | 723.94 |
| W39 | NA | NA | NA | NA | NA | NA | NA | 727.72 | 727.95 | 728.15 |
| W40 | NA | NA | NA | NA | NA | NA | NA | 728.03 | 728.14 | 728.36 |
| W41 | NA | NA | NA | NA | NA | NA | NA | 727.07 | 727.01 | 727.30 |

## TABLE 2-2

## Water Level Summary
## Beloit Corporation - Blackhawk Facility
## Remedial Investigation / Feasibility Study

| Well ID | Elevation SWL 11-12-92 (ft MSL) | Elevation SWL 3-9-93 (ft MSL) | Elevation SWL 5-26-93 (ft MSL) | Elevation SWL 8-12-93 (ft MSL) | Elevation SWL 1-24-94 (ft MSL) | Elevation SWL 6-3-94 (ft MSL) | Elevation SWL 6-22-94 (ft MSL) | Elevation SWL 8-26-94 (ft MSL) | Elevation SWL 10-28-94 (ft MSL) | Elevation SWL 12-30-94 (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|---|
| G101 | 721.66 | NR | 725.93 | 727.86 | 724.46 | 724.04 | 723.74 | 722.38 | 722.90 | 722.75 |
| G103S | 723.54 | 725.75 | 730.21 | 730.68 | 724.93 | 725.50 | 725.13 | 723.79 | 724.19 | 724.60 |
| G103D | 723.48 | 725.67 | 729.49 | 730.24 | 725.02 | 725.41 | 725.06 | 723.77 | 724.14 | 724.53 |
| G104 | 722.44 | 723.42 | 726.44 | 726.65 | 723.10 | 723.48 | 723.25 | 722.17 | 722.76 | 722.70 |
| G107 | 727.84 | 728.69 | 731.80 | 732.92 | 730.27 | 729.80 | 729.63 | 728.27 | 728.76 | 728.54 |
| G108S | 719.32 | 720.56 | 724.40 | 725.70 | 721.35 | 721.27 | 720.93 | 719.78 | 720.16 | 720.02 |
| G108D | 719.46 | 720.59 | 724.42 | 725.72 | 721.37 | 721.29 | 720.95 | 719.82 | 720.19 | 720.04 |
| G109 | 722.21 | 723.05 | 726.01 | NR | 722.65 | 722.98 | 722.84 | 721.91 | 722.42 | 722.31 |
| G110 | 721.66 | 722.34 | 725.50 | 725.65 | 721.95 | 722.35 | 722.23 | 721.43 | 721.84 | 721.61 |
| P1 | 722.64 | 722.64 | 726.05 | 726.13 | 722.87 | 723.36 | 723.22 | 722.36 | 722.86 | 722.78 |

| Staff Gauge | Elevation of Surface Water 11-12-92 (ft MSL) | | | | Elevation of Surface Water 1-24-94 (ft MSL) | Elevation of Surface Water 6-3-94 (ft MSL) | Elevation of Surface Water 6-22-94 (ft MSL) | Elevation of Surface Water 8-26-94 (ft MSL) | Elevation of Surface Water 10-28-94 (ft MSL) | Elevation of Surface Water 12-30-94 (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|---|
| SG3 | 725.58 | | | | 725.48 | | | | | |
| SG4 | 725.53 | | | | 724.44 | | | | | |
| SG5 | 725.84 | | | | 726.00 | | | | | |
| SG6 | NA | | | | NA | NA | NA | 725.83 | 725.56 | 725.41 |
| SG7 | NA | | | | NA | NA | NA | 725.69 | 725.44 | NA |

OTES:

1. SWL = Static Water Level
2. ABD = Well Abandoned
3. MSL = Mean Sea Level
4. NA = Not Applicable. Not yet installed
5. NR = Not Recorded, well unable to be located.

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[J:\10024910\Tables\1994wl.xls]

# TABLE 2-3

**Well Information Form**
**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation/Feasibility Study - Phase II**

| Well ID | Coordinates | | Well Depth [2] | Ground Elevation [3] | Screen Length [4] | Well Type | Well Material | Year Installed | MONITORING WELL ELEVATIONS [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | EXISTING ELEVATIONS | | 1994 SURVEY | |
| | North | East | | | | | | | Top of Casing Elevation | Top of Protective Casing Elevation | Top of Casing Elevation | Top of Protective Casing Elevation |
| W1R | 2116809.4 | 797781.8 | 25.6 | 747.1 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 749.41 | 749.34 |
| W2 | 2114080.5 | 796589.3 | 37.0 | 752.9 | 10 | W | 2" PVC | 1983 | 754.94 | 755.12 | 755.03 | 755.51 |
| W3R | 2113822.4 | 795756.7 | 29.1 | 744.0 | 10 | W | 2" PVC/SS | 1992 | 746.22 | 746.40 | 746.25 | 746.43 |
| W5R | 2113828.5 | 795755.9 | 57.7 | 744.0 | 5 | P | 2" PVC/SS | 1992 | 746.17 | 746.43 | 746.16 | 746.43 |
| W6 | 2115090.0 | 795860.0 | 38.4 | 745.2 | 10 | W | 2" PVC | 1984 | 747.61 | 747.66 | 747.79 | 747.83 |
| W7 | 2116047.6 | 796956.8 | 33.4 | 749.1 | 10 | W | 2" PVC | 1984 | 751.20 | 751.22 | 751.29 | 751.40 |
| W8R | 2115777.3 | 799691.7 | 51.6 | 771.9 | 10 | W | 2" PVC/SS | 1992 | 774.83 | 775.02 | 774.93 | 775.13 |
| W9 | 2115360.0 | 797315.0 | 34.5 | 752.7 | 10 | W | 2" PVC | 1984 | 754.62 | 754.67 | 754.76 | 754.82 |
| W10 | 2115363.5 | 797333.5 | 57.7 | 752.6 | 5 | P | 2" PVC | 1984 | 754.61 | 754.72 | 754.74 | 754.89 |
| W11R | 2115770.7 | 799690.6 | 61.1 | 771.9 | 5 | P | 2" PVC/SS | 1992 | 774.82 | 775.22 | 774.92 | 775.36 |
| W12R | 2113737.2 | 796402.8 | 37.5 | 754.1 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 756.56 | 756.49 |
| W13 | 2114475.0 | 796834.0 | 30.0 | 753.1 | 10 | W | 2" SS | 1987 | 755.20 | 755.47 | 755.34 | 755.61 |
| W14 | 2114475.5 | 796834.3 | 58.4 | 752.6 | 5 | P | 2" SS | 1987 | 753.75 | 754.00 | 753.89 | 754.23 |
| W15 | 2115935.0 | 797650.0 | 30.5 | 751.0 | 10 | W | 2" SS | 1987 | 753.32 | 753.43 | 753.41 | 753.60 |
| W16R | 2115808.3 | 798055.6 | 39.8 | 758.8 | 10 | W | 2" PVC/SS | 1992 | 761.54 | 761.78 | 761.59 | 761.85 |
| W17 | 2116470.0 | 796690.0 | 15.5 | 732.8 | 10 | W | 2" SS | 1987 | 735.36 | 735.64 | 735.57 | 735.85 |
| W18 | 2113721.0 | 796617.6 | 75.0 | 746.1 | 5 | P | 2" SS | 1989 | 748.35 | Unknown | 748.48 | 748.28 |
| W19 | 2113068.7 | 795439.2 | 27.3 | 742.1 | 10 | W | 2" PVC/SS | 1992 | 744.76 | 745.08 | 744.74 | 745.07 |
| W19B | 2113068.6 | 795430.3 | 57.1 | 742.1 | 5 | P | 2" PVC/SS | 1992 | 744.97 | 744.97 | 744.72 | 744.98 |
| W20R | 2114198.2 | 795748.4 | 27.3 | 743.9 | 10 | W | 2" PVC/SS | 1992 | 746.58 | 746.87 | 747.08 | 747.20 |
| W20B | 2114207.4 | 795746.7 | 51.7 | 743.9 | 5 | P | 2" PVC/SS | 1992 | 747.11 | 747.22 | 746.56 | 746.85 |
| W21 | 2114472.9 | 795972.7 | 30.0 | 747.8 | 10 | W | 2" PVC/SS | 1992 | 750.29 | 750.36 | 750.23 | 750.29 |
| W21B | 2114467.1 | 795974.5 | 60.1 | 747.8 | 5 | P | 2" PVC/SS | 1992 | 750.39 | 750.54 | 750.37 | 750.52 |
| W22 | 2114216.6 | 796509.5 | 34.5 | 754.9 | 10 | W | 2" PVC/SS | 1992 | 757.93 | 758.05 | 757.90 | 758.03 |
| W22B | 2114209.9 | 796506.9 | 60.2 | 754.9 | 5 | P | 2" PVC/SS | 1992 | 758.13 | 758.28 | 758.05 | 758.22 |
| W22C | 2114210.1 | 796514.5 | 73.1 | 754.9 | 5 | P | 2" PVC/SS | 1992 | 757.71 | 757.96 | 757.69 | 757.98 |
| W23 | 2115143.4 | 796336.9 | 33.9 | 753.9 | 10 | W | 2" PVC/SS | 1992 | 753.59 | 753.90 | 753.52 | 753.83 |
| W23B | 2115136.3 | 796335.1 | 49.8 | 753.7 | 5 | P | 2" PVC/SS | 1992 | 753.38 | 753.70 | 753.32 | 753.64 |
| W24 | 2116665.0 | 798525.0 | 32.1 | 752.3 | 10 | W | 2" PVC/SS | 1992 | 755.44 | 755.32 | 755.55 | 755.43 |
| W25C | 2113792.5 | 795761.0 | 72.9 | 744.2 | 5 | P | 2" PVC/SS | 1992 | 746.72 | 746.99 | 746.76 | 747.05 |
| W26 | 2113339.1 | 796150.2 | 36.7 | 751.9 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 754.16 | 754.09 |
| W26C | 2113338.8 | 796153.6 | 77.0 | 751.9 | 5 | P | 2" PVC/SS | 1992 | 754.55 | 754.67 | 754.61 | 754.73 |
| W27 | 2114579.6 | 798024.9 | 50.4 | 764.8 | 10 | W | 2" PVC/SS | 1992 | 767.22 | 767.39 | 767.29 | 767.45 |
| W28 | 2115719.2 | 796771.7 | 32.4 | 752.8 | 10 | W | 2" PVC/SS | 1992 | 752.27 | 752.80 | 752.43 | 752.96 |

# TABLE 2-3

**Well Information Form**
**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation/Feasibility Study - Phase II**

| Well ID | Coordinates | | Well Depth [2] | Ground Elevation [3] | Screen Length [4] | Well Type | Well Material | Year Installed | MONITORING WELL ELEVATIONS [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | EXISTING ELEVATIONS | | 1994 SURVEY | |
| | North | East | | | | | | | Top of Casing Elevation | Top of Protective Casing Elevation | Top of Casing Elevation | Top of Protective Casing Elevation |
| W29 | 2113195.0 | 797019.3 | 30.6 | 747.6 | 10 | W | 2" PVC/SS | 1992 | 749.87 | 750.12 | 751.16 | 751.40 |
| W31C | 2115103.8 | 796672.9 | 52.2 | 754.1 | 5 | P | 2" PVC/SS | 1994 | NA | NA | 753.75 | 754.08 |
| W32 | 2115112.8 | 797025.9 | 30.5 | 754.1 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 756.54 | 756.53 |
| W34 | 2115019.1 | 796861.9 | 36.8 | 753.8 | 5 | W | 2" PVC/SS | 1994 | NA | NA | 753.45 | 753.78 |
| W35C | 2115284.3 | 796752.7 | 70.0 | 754.3 | 5 | P | 2" PVC/SS | 1994 | NA | NA | 754.01 | 754.34 |
| W37 | 2115134.9 | 797758.1 | 40.1 | 758.1 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 757.68 | 758.06 |
| W38 | 2114467.1 | 795785.5 | 35.2 | 742.8 | 10 | P | 2" PVC/SS | 1994 | NA | NA | 745.26 | 745.19 |
| W39 | 2115344.2 | 796631.0 | 31.8 | 754.3 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 753.85 | 754.33 |
| W40 | 2115335.4 | 796865.2 | 32.3 | 754.3 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 753.68 | 754.32 |
| W41 | 2114557.3 | 796642.6 | 34.4 | 754.9 | 10 | W | 2" PVC/SS | 1994 | NA | NA | 754.38 | 754.85 |
| G101 | 2112670.0 | 798680.0 | 52.3 | 763.7 | 15 | W | 2" PVC | 1984 | 766.37 | NA | 766.45 | NA |
| G103S | 2113721.0 | 796617.0 | 25.8 | 746.4 | 5 | W | 2" SS | 1986 | 748.87 | 749.02 | 748.94 | 749.09 |
| G103D | | | 49.0 | 746.1 | 5 | P | 2" SS | 1986 | 747.89 | Unknown | 747.96 | 748.10 |
| G104 | 2113795.0 | 795690.0 | 25.0 | 741.7 | 5 | W | 2" SS | 1986 | 744.56 | 744.71 | 744.64 | 744.78 |
| G107 | 2116860.0 | 799170.0 | 48.7 | 769.3 | 5 | W | 2" SS | 1986 | 771.24 | Unknown | 771.31 | 771.41 |
| G108S | 2112535.0 | 797165.0 | 39.8 | 754.0 | 5 | W | 2" SS | 1987 | 756.91 | Unknown | 756.90 | 757.07 |
| G108D | | | 71.6 | 753.8 | 5 | P | 2" SS | 1987 | 756.36 | Unknown | 756.34 | 756.49 |
| G109 | 2113560.0 | 795380.0 | 17.4 | 735.6 | 5 | W | 2" SS | 1987 | 738.99 | Unknown | 739.05 | 739.22 |
| G110 | 2113240.0 | 795000.0 | 19.8 | 735.6 | 5 | W | 2" SS | 1987 | 738.20 | Unknown | 738.26 | 738.42 |
| P1 | 2113850.0 | 795200.0 | 20.0 | 732.4 | 10 | P | 2"PVC | 1986 | 734.52 | NA | 734.73 | NA |
| SG6 | 2116513.1 | 796661.8 | NA | NA | NA | NA | NA | 1994 | NA | NA | 725.03 [6] | NA |
| SG7 | 2114067.4 | 794767.5 | NA | NA | NA | NA | NA | 1994 [5] | NA | NA | 724.58 [6] | NA |

Notes:
2" PVC = 2" Poly vinyl chloride well screen and casing
2" SS = 2" Stainless steel well screen and casing
2" PVC = 2" poly vinyl chloride well casing and 2" stainless steel screen (10' stainless steel riser above screen in piezometers).
NA = Not applicable

Footnotes:
(1) All elevations shown are in ft. MSL (Mean Sea Level).
(2) Well depth relative to ground surface.
(3) Ground surface at wells existing prior to Phase II were not surveyed in 1994.
(4) Screen lengths are shown as general measurements. For exact screen lengths, see Appendix F of Tech Memo 2 for wells installed in 1994 and Appendices C and D of Tech Memo 1 for wells existing prior to Phase II of the RI/FS.
(5) Staff Gauge SG5 from Phase I of the RI/FS was reset and designated as SG7.
(6) Elevation shown is the "zero" mark on staff gauges.

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# TABLE 2-4

## Summary of Hydraulic Conductivities
## Beloit Corporation - Blackhawk Facility
## Remedial Investigation / Feasibility Study

| Well ID | Hydraulic Conductivity (cm/sec) | Screened Material | Test Type |
|---|---|---|---|
| W1R | 1.1 x 10 - 01 | Sand and Gravel | Slug |
| W12R | 4.0 x 10 - 04 | Sand (1) | Baildown |
| W26 | 2.4 x 10 - 02 | Sand and Gravel | Slug |
| W31C | 1.5 x 10 - 02 | Sand | Air Pressure |
| W32 | 1.1 x 10 - 03 | Silty Sand | Slug |
| W34 | 2.0 x 10 - 04 | Silty Sand | Slug |
| W35C | 4.0 x 10 - 03 | Sand | Air Pressure |
| W37 | 8.7 x 10 - 03 | Silty Sand | Slug |
| W38 | 2.8 x 10 - 03 | Sand | Air Pressure |
| W39 | 5.8 x 10 - 03 | Silty Sand | Slug |
| W40 | 2.6 x 10 - 05 | Silty Sand | Baildown |
| W41 | 5.2 x 10 - 02 | Sand | Slug |

Notes:

Hydraulic Conductivity Test Methods are Included in Appendix H

Footenotes:

(1) Probable silty sand at the water table

RJR/rjr/MHG

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# TABLE 2-5
## Vertical Gradient Calculations
## Beloit Corporation - Blackhawk Facility
## Remedial Investigation Feasibility Study - Phase II

| WELL I.D. | SCREEN INTERVAL TOP | SCREEN INTERVAL BOTTOM | SCREEN MIDPOINT | LEVEL (8-26-94) | WELL I.D. | VERTICAL GRADIENT (8-26-94) |
|---|---|---|---|---|---|---|
| G103S | 726.1 | 721.1 | 723.6 | 723.79 | G103S/G103D | -0.001 |
| G103D | 702.5 | 697.1 | 699.8 | 723.77 | G103D/W18 | -0.033 |
| W18 | 679.1 | 674.1 | 676.6 | 723.01 | G103S/W18 | -0.017 |
| G108S | 719.7 | 714.7 | 717.2 | 719.78 | G108S/G108D | 0.001 |
| G108D | 687.6 | 682.7 | 685.2 | 719.82 | | |
| W3R | 725.1 | 714.9 | 720.0 | 722.17 | W3R/W5R | 0.001 |
| W5R | 691.5 | 686.3 | 688.9 | 722.20 | W5R/W25C | -0.002 |
| W25C | 676.5 | 671.3 | 673.9 | 722.15 | W3R/W25C | 0.000 |
| W9 | 728.2 | 718.2 | 723.2 | 728.04 | W9/W10 | 0.000 |
| W10 | 699.9 | 694.9 | 697.4 | 728.05 | | |
| W8R | 730.5 | 720.3 | 725.4 | 729.04 | W8R/W11R | -0.001 |
| W11R | 716.0 | 710.8 | 713.4 | 729.03 | | |
| W13 | 733.1 | 723.1 | 728.1 | 727.56 | W13/W14 | -0.019 |
| W14 | 698.8 | 694.2 | 696.5 | 726.98 | | |
| W19 | 725.0 | 714.8 | 719.9 | 721.00 | W19/W19B | 0.000 |
| W19B | 690.2 | 685.0 | 687.6 | 721.01 | | |
| W20R | 726.8 | 716.6 | 721.7 | 722.78 | W20R/W20B | 0.002 |
| W20B | 697.4 | 692.2 | 694.8 | 722.83 | | |
| W21 | 728.0 | 717.8 | 722.9 | 723.45 | W21/W21B | 0.003 |
| W21B | 692.9 | 687.7 | 690.3 | 723.54 | | |
| W22 | 730.6 | 720.4 | 725.5 | 724.35 | W22/W22B | -0.009 |
| W22B | 699.9 | 694.7 | 697.3 | 724.10 | W22B/W22C | -0.037 |
| W22C | 687.0 | 681.8 | 684.4 | 723.62 | W22/W22C | -0.018 |
| W23 | 730.2 | 720.0 | 725.1 | 727.66 | W23/W23B | -0.023 |
| W23B | 709.1 | 703.9 | 706.5 | 727.17 | | |
| W26 | 725.5 | 715.2 | 720.4 | 721.33 | W26/W26C | 0.003 |
| W26C | 680.1 | 674.9 | 677.5 | 721.46 | | |

NOTES:
(-) = Downward Vertical Gradient
(+) = Upward Vertical gradient
Water Levels Collected by Montgomery Watson on August 26, 1994

J:\10024910\TABLES\BCVG94.XLS
RJR\rjr\MHG

**TABLE 3-1**
**Results For Field Volatile Organics Screening - Soil Gas**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study -Phase II**

| | | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | Sample Date | Depth | PID Units | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| SG300 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG301 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG302 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG303 | 6/5/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG304 | 6/5/94 | 6-8 ft | 0 | | 5.4 | | | | | | | | | | | | |
| SG305 | 6/5/94 | 6-8 ft | 0 | | 7.8 | | | | | | | | | | | | |
| SG305 DUP | 6/5/94 | 6-8 ft | - | | 9.3 | | | | | | | | | | | | |
| SG306 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG307 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG308 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG308 DUP | 6/5/94 | 6-8 ft | - | ND | | | | | | | | | | | | | |
| SG309 | 6/4/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG310 | 6/4/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG311 | 6/4/94 | 6-8 ft | 0 | | 9.4 | | | | | | | | | | | | |
| SG312 | 6/4/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG313 | 6/4/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG314 | 6/4/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG315 | 6/4/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG316 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG316 DUP | 6/3/94 | 3-4 ft | - | ND | | | | | | | | | | | | | |
| SG317 | 6/3/94 | 3-4 ft | 0 | | < | | | | | | | | | | | | |
| SG318 | 6/3/94 | 3-4 ft | 0 | | 5.1 | | | | | | | | | | | | |
| SG319 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG320 | 6/3/94 | 3-4 ft | 0 | | 38 | < | | | | | | | | | | | |
| SG321 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG322 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG323 | 6/5/94 | 6-8 ft | 0 | | 8.7 | | | | | | | | | | | | |
| SG323 DUP | 6/5/94 | 6-8 ft | - | | 8.7 | | | | | | | | | | | | |
| SG324 | 6/5/94 | 6-8 ft | 0 | | 9.4 | | | | | | | | | | | | |
| SG325 | 6/5/94 | 6-8 ft | 0 | | 6.1 | | | | | | | | | | | | |
| SG326 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG327 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG328 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG329 | 6/4/94 | 6-8 ft | 0 | | 150 | | | | | | | | | | | | |
| SG330 | 6/4/94 | 6-8 ft | 0 | | 62 | | | | | | | | | | | | |
| SG331 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG332 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG333 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG333 DUP | 6/4/94 | 6-8 ft | - | ND | | | | | | | | | | | | | |
| SG334 | 6/5/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |

**TABLE 3-1**
**Results For Field Volatile Organics Screening - Soil Gas**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study -Phase II**

| | | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | Sample Date | Depth | PID Units | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| SG335 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG336 | 6/3/94 | 3-4 ft | 0 | | 44 | < | | | | | | | | | | | |
| SG337 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG337 DUP | 6/3/94 | 3-4 ft | - | ND | | | | | | | | | | | | | |
| SG338 | 6/3/94 | 3-4 ft | 0 | | 7.9 | | | | | | | | | | | | |
| SG339 | 6/3/94 | 3-4 ft | 0 | | 8.1 | | | | | | | | | | | | |
| SG340 | 6/3/94 | 3-4 ft | 0 | | < | | | | | | | | | | | | |
| SG341 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG342 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG343 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG344 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG345 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG346 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG347 | 6/3/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG348 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG349 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG350 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG351 | 6/4/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG352 | 6/4/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG353 | 6/4/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG354 | 6/6/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG355 | 6/6/94 | 6-8 ft | 0 | | 18.2 | | | | | | | | | | | | |
| SG356 | 6/6/94 | 6-8 ft | 0 | | 10 | | | | | | | | | | | | |
| SG357 | 6/6/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG358A | 6/6/94 | 3-4 ft | 0 | ND | | | | | | | | | | | | | |
| SG358B | 6/6/94 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SG359 | 6/6/94 | 6-8 ft | 0 | | 43 | | | | | | | | | | | | |
| SG360 | 6/6/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG361 | 6/6/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG362 | 6/6/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG363 | 6/6/94 | 6-8 ft | 0 | | 5.6 | | | | | | | | | | | | |
| SG364 | 6/7/94 | 6-8 ft | 0 | | 30 | | | | | | | | | | | | |
| SG365 | 6/7/94 | 6-8 ft | 0 | | 20 | | | | | | | | | | | | |
| SG365 DUP | 6/7/94 | 6-8 ft | 0 | | 24 | | | | | | | | | | | | |
| SG366 | 6/7/94 | 6-8 ft | 0 | | 23 | | | | | | | | | | | | |
| SG367 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG368 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG369 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG370 | 7/6/94 | 6-8 ft | 0 | | 97 | | | | | | | | | | | | |
| SG371 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG372 | 6/7/94 | 6-8 ft | 0 | | 6.5 | | | | | | | | | | | | |

**TABLE 3-1**
**Results For Field Volatile Organics Screening - Soil Gas**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study -Phase II**

| | | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Sample Date** | **Depth** | **PID Units** | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| SG373 | 6/7/94 | 6-8 ft | 0 | | 7.5 | | | | | | | | | | | | |
| SG374 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG375 | 6/7/94 | 6-8 ft | 0 | | 14 | | | | | | | | | | | | |
| SG376 | 6/7/94 | 6-8 ft | 0 | | 14 | | | | | | | | | | | | |
| SG377 | 6/7/94 | 6-8 ft | 0 | | 6.5 | | | | | | | | | | | | |
| SG377 DUP | 6/7/94 | 6-8 ft | 0 | | 7.1 | | | | | | | | | | | | |
| SG378 | 6/7/94 | 6-8 ft | 0 | | 6.3 | | | | | | | | | | | | |
| SG379 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG380 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG380DUP | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| SG381 | 6/7/94 | 6-8 ft | 0 | | < | | | | | | | | | | | | |
| Equipment Blk. | 6/7/94 | - | 0 | ND | | | | | | | | | | | | | |

This table presents the results of the field Gas Chromatograph (GC) volatile organic compound analysis of soil gas samples collected June 3-7, 1994 at the Beloit Corporation Blackhawk Facility.

Results are presented in mass to volume units of ug/L.

PID readings were taken with a Thermo Environmental Instruments model 580B Organic Vapor Monitor (OVM). Samples were collected in Tedlar bags from the OVM exit port.

ND indicates target compounds were not detected at a concentration greater than the method reporting limit of 5 ug/L.
< Indicates the compound was present at a concentration less than the method reporting limit.
Concentrations greater than 50 times the method reporting limit indicate a dilution was required for the sample.

All data generated by field GC is considered as tentatively identified, with concentration being estimated.

**Table 3-2**
**Results For Field Volatile Organics Screening - Soil Borings**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Depth** | **PID Units** | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| W23 (1:5) (1) | GW | - | | 3500 | | | | | | | | | | | | |
| W22 GW (2) | GW | - | ND | | | | | | | | | | | | | |
| W22B GW (2) | GW | - | ND | | | | | | | | | | | | | |
| W22C GW (2) | GW | - | ND | | | | | | | | | | | | | |
| SB22 | 3-5 ft | 0 | ND | | | | | | | | | | | | | |
| SB22 | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB22 | 13-14 ft | 0 | | | | | | | | | | | | | < | |
| SB22C | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB22C | 13-15 ft | 0 | ND | | | | | | | | | | | | | |
| SB22C | 20-22 ft | 0 | ND | | | | | | | | | | | | | |
| SB22C | 24-26 ft | 0 | ND | | | | | | | | | | | | | |
| SB22C | 28-30 ft | 0 | ND | | | | | | | | | | | | | |
| SB22C GW | GW | - | | 6.0 | | | | | | | 5.8 | | | | | |
| SB23 | 4-6 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 | 10-12 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 | 15-17 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 | 20-21.5 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 | 21.5-23.5 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 | 25-27 ft | 0 | ND | | | | | | | | | | | | | |
| SB23 GW | GW | - | | | | | | | | | 11 | | | | | |
| SB24 | 6-8 ft | 0 | ND | | | | | | | | | | | | | |
| SB24 | 10-12 ft | 0 | ND | | | | | | | | | | | | | |
| SB24 | 15-17 ft | 0 | ND | | | | | | | | | | | | | |
| SB24 | 23-25 ft | 0 | ND | | | | | | | | | | | | | |
| SB24 GW (1:3) | GW | - | | 17 | | | | | | | | | | | | |
| SB25 | 4-6 ft | 0 | ND | | | | | | | | | | | | | |
| SB25 | 10-12 ft | 0 | ND | | | | | | | | | | | | | |
| SB25 | 15-16 ft | 0 | ND | | | | | | | | | | | | | |
| SB25 | 18-20 ft | 0 | ND | | | | | | | | | | | | | |
| SB25 | 22-24 ft | 0 | ND | | | | | | | | | | | | | |
| SB25 GW | GW | - | | 144 | < | | | < | | | | | | | | |
| SB26 | 3-5 ft | 0 | ND | | | | | | | | | | | | | |
| SB26 | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB26 | 14-16 ft | 0 | ND | | | | | | | | | | | | | |
| SB26 | 18-20 ft | 0 | | < | | | | | | | | | | | | |
| SB26 | 23-25 ft | 0 | | < | | | | | | | | | | | | |
| SB26 GW | GW | - | | 220 | | | | | | | | | | | | |
| SB27 | 4-6 ft | 0 | ND | | | | | | | | | | | | | |
| SB27 | 10-12 ft | 0 | ND | | | | | | | | | | | | | |
| SB27 | 15-17 ft | 0 | ND | | | | | | | | | | | | | |
| SB27A | 19-21 ft | 0 | ND | | | | | | | | | | | | | |
| SB27A | 23-25 ft | 0 | ND | | | | | | | | | | | | | |
| SB27A GW | GW | - | | 39 | | | | | | | | | | | | |
| SB27A GW RE | GW | - | | 37 | | | | | | | | | | | | |

mdux/jobs/10024910/chem/FGC-SB1.XLS
JAH/jah/CAW
12/1/94

**Table 3-2**
**Results For Field Volatile Organics Screening - Soil Borings**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Depth** | **PID Units** | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| SB28 GW | GW | | | | | | | | | < | 11 | | | | | |
| SB29 GW | GW | | | | | | | | | | 5.5 | | | | | |
| SB30 | 4-6 ft | 0 | | < | | | | | | | | | | | | |
| SB30 | 10-12 ft | 0 | | 50 | | | | | | | | | | | | |
| SB30 | 17-19 ft | 0 | | 71 | | | | | | | | | | | | |
| SB30 | 20-22 ft | 0 | | 68 | | | | | | | | | | | | |
| SB30 | 24-26 ft | 0 | | 40 | | | | | | | | | | | | |
| SB30 | 30-32 ft | 0 | | < | | | | | | | | | | | | |
| SB30 | 34-36 ft | 0 | | < | | | | | | | | | | | | |
| SB30 GW | GW | - | | 90 | < | | | < | | | < | | | | | |
| SB31 | 10-11 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 5-7 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 9-11 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 15-17 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 21-23 ft | 0 | | 16 | | | | | | | | | | | | |
| SB32 | 25-27 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 29-31 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 | 35-37 ft | 0 | ND | | | | | | | | | | | | | |
| SB32 GW | GW | - | | < | | | | | | | | | | | | |
| SB33 | 4-6 ft | 0 | ND | | | | | | | | | | | | | |
| SB33 | 10-12 ft | 0 | ND | | | | | | | | | | | | | |
| SB33 | 14-16 ft | 0 | ND | | | | | | | | | | | | | |
| SB33 | 20-22 ft | 0 | ND | | | | | | | | | | | | | |
| SB33 | 24-26 ft | 0 | | 51 | | | | | | | | | | | | |
| SB33 | 30-32 ft | 0 | | < | | | | | | | | | | | | |
| SB33 GW (1:5) | GW | - | | 180 | < | | | 120 | | | | | | | | |
| SB34 | 3-5 ft | 0 | ND | | | | | | | | | | | | | |
| SB34 | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB34 | 13-15 ft | 0 | ND | | | | | | | | | | | | | |
| SB34 | 18-20 ft | 0 | ND | | | | | | | | | | | | | |
| SB34 | 25-27 ft | 0 | ND | | | | | | | | | | | | | |
| SB34 GW | GW | - | | 29 | | | | | | | | | | | | |
| SB35 | 3-5 ft | 0 | ND | | | | | | | | | | | | | |
| SB35 | 8-10 ft | 0 | | 54 | | | | | | | | | | | | |
| SB35 | 13-15 ft | 0 | | 43 | | | | | | | | | | | | |
| SB35 | 22-24 | 0 | | 29 | | | | | | | | | | | | |
| SB35 | 30-32 | 0 | | 110 | | | | | | | | | | | | |
| SB36 | 3-5 ft | 0 | ND | | | | | | | | | | | | | |
| SB36A | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB36A | 13-15 ft | 0 | ND | | | | | | | | | | | | | |
| SB36A | 18-20 ft | 0 | | < | | | | | | | | | | | | |
| SB36A | 23-25 ft | 0 | | < | | | | | | | | | | | | |
| SB36A GW | GW | - | | 320 | | | | | | | | | | | | |
| SB37 | 5-7 ft | 0 | ND | | | | | | | | | | | | | |

**Table 3-2**
**Results For Field Volatile Organics Screening - Soil Borings**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Depth** | **PID Units** | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| SB37 | 5-7 ft | 0 | ND | | | | | | | | | | | | | |
| SB37 | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB37 | 13-15 ft | 0 | ND | | | | | | | | | | | | | |
| SB37 | 20-22 ft | 0 | ND | | | | | | | | | | | | | |
| SB37 | 23-25 ft | 0 | | < | | | | | | | | | | | | |
| SB37 | 28-30 ft | 0 | | < | | | | | | | | | | | | |
| SB37 | 34-36 ft | 0 | | 80 | | | | | | | | | | | | |
| SB37 GW | GW | - | | 1700 | | | | | | | | | | | | |
| SB38 | 3-5 ft | 0 | | < | | | | | | | | | | | | |
| SB38 | 8-10 ft | 0 | ND | | | | | | | | | | | | | |
| SB38 | 13-15 ft | 0 | ND | | | | | | | | | | | | | |
| SB38 | 18-20 ft | 0 | ND | | | | | | | | | | | | | |
| SB38 | 23-25 ft | 0 | ND | | | | | | | | | | | | | |
| SB38 GW | GW | - | | 12 | | | | | | | < | | | | | |
| W01R | 9-11 ft | 0 | ND | | | | | | | | | | | | | |

This table presents the results of the field Gas Chromatograph (GC) volatile organic compound analysis of soil boring samples collected June 8-26, 1994 at the Beloit Corporation Blackhawk Facility.

Results are presented in units of ug/L for waters and ug/kg for soils.

PID readings were taken with an Organic Vapor Monitor (OVM) using the headspace method.

ND indicates target compounds were not detected at a concentration greater than the method reporting limit of 15 ug/kg for soil samples.
< Indicates the compound was present at a concentration less than the method reporting limit.
Concentrations greater than 50 times the method reporting limit indicate a dilution was required for the sample.

All data generated by field GC is considered as tentatively identified, with concentration being estimated.

Footnotes:
(1) A water sample was collected from well W23 during the boring program to give an indication of groundwater contaminant concentrations in the erection bay area.
(2) Samples were collected from W22, W22A, and W22B to give an indication of groundwater contaminant concentrations in the southeastern part of the SYA.

mdux/jobs/10024910/chem/ph2/FGC-SB1.XLS
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# TABLE 3-3

**Summary of Organic Compounds Detected in Soil Boring Samples**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | VOLATILES | | | | | | SEMIVOLATILES | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1,1,1-Trichloroethane | Tetrachloroethene | 1,2-Dichloroethene (total) | 2-Butanone | 2-Hexanone | Toluene | bis(2-ethylhexyl)phthalate | Acenaphthene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Carbazole | Chrysene | Dibenzofuran | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Total PAHs |
| **Beloit Corporation Plant** | | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB22C-08 | | | | | | | | | | | | | | | | | | 43 | | | | 39 | 82 |
| BC-SSSB23-10 | | | | | | | | 150 | 250 | 870 | 1,000 | 900 | 830 | 950 | 140 | 1,200 | 66 | 1,600 | 130 | 780 | 1,000 | 1,100 | 10,966 [2] |
| BC-SSSB23-22 [1] | | 3 | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB24-10 | | | | | | | | | | | | | | | | | | 38 | | | 57 | | 95 |
| BC-SSSB30-17 | | 76 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB30-20 | | 20 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB32-09 | | 1 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB32-21 | | 39 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB33-10 | | 2 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB33-24 | | 111 | 4 | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB34-08 | | | | | | | | | | | | 42 | | | | 37 | | 39 | | | | | 118 |
| BC-SSSB35-13 | | 170 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB35-13D | | 195 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB35-30 | | 433 | | | | | 64 | | | | | | | | | | | | | | | | |
| BC-SSSB36A-08 | | | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB37-08 | | 3 | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB37-34 | | 160 | | | | | | | | | | | | | | | | | | | | | R |
| **Foundary Sand Disposal Area** | | | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB28-25 | | | | 8 | 4 | | | | | | | | | | | | | | | | | | R |
| BC-SSSB28-32 | | | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB29-28 | 2 | | | | | 1 | | | | | | | | | | | | | | | | | R |
| **Storage Yard Area** | | | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB26-08 | | | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB27-10 | | 1 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB38-03 | | 3 | | | | | | | | | | | | | | | | | | | | | R |
| BC-SSSB38-08 | | | | | | | | | | | | | | | | | | | | | | | R |

This table presents a summary of TCL organics detected in soil boring samples collected in Phase II of the Beloit Corporation RI/FS. Refer to Appendix C for analytical reports.
Results are presented in units of ug/kg.
A blank indicates the compound was not detected in that sample.
R = SVOC results qualified unusable.

Footnotes:
(1) Sample depth - 21.5 to 23.5 ft.
(2) See sample qualifier in App. C1, page 5 (detected compounds qualified estimated, not detected qualified unusable).

mdux/jobs/10024910/chem/ph2/SBORG.XLS
ORACLE/JAH/CAW
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# TABLE 3-4
## Summary of Metals Detected in Soil Boring Samples

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| SAMPLEID | Aluminum | Arsenic | Barium | Beryllium | Calcium | Chromium, total | Cobalt | Copper | Iron | Lead | Magnesium | Manganese | Nickel | Potassium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Beloit Corporation Plant** | | | | | | | | | | | | | | | | |
| BC-SSSB22C-08 | 1430 | 1.2 | 10.5 | | 44700 | 5.6 | 1.5 | 7.3 | 3230 | 4.3 | 26100 | 119 | | 244 | | |
| BC-SSSB23-10 | 1420 | 1.6 | 8.7 | | 98300 | 2.7 | 2.1 | 7.7 | 4360 | 1.6 | 52000 | 179 | | 190 | 6.8 | |
| BC-SSSB23-22 (1) | 3690 | 1.2 | 20 | | 86000 | 7.6 | | 10.8 | 7520 | 25.5 | 40600 | 215 | | 658 | 13.5 | 45.2 |
| BC-SSSB24-10 | 1790 | | 8.7 | | 81100 | 2.9 | 2.4 | 13.3 | 5400 | 1.5 | 44500 | 176 | | | 9.1 | |
| BC-SSSB25-10 | 1160 | 1.4 | 6.2 | | 82000 | 2.8 | 2.1 | | 3450 | 1.2 | 41000 | 137 | | | 5.6 | |
| BC-SSSB30-17 | 2320 | 1.6 | 11.1 | 0.11 | 95000 | 5.8 | 3.4 | 10.8 | 6680 | 2.3 | 42700 | 191 | | | 10 | 35.1 |
| BC-SSSB30-20 | 4500 | | 21.8 | 0.15 | 61000 | 7.4 | 5.1 | 13.4 | 7810 | 3.3 | 36700 | 196 | | | 22.9 | 37.7 |
| BC-SSSB32-09 | 1670 | | 8.5 | | 105000 | 2.7 | 2.3 | | 4880 | 1.2 | 62900 | 187 | | | 8.3 | |
| BC-SSSB32-21 | 4600 | | 20.7 | 0.22 | 68300 | 8.6 | 4.8 | 18 | 10400 | 3.9 | 41100 | 245 | | 763 | 20.8 | 41.9 |
| BC-SSSB33-10 | 1660 | 2.3 | 12.5 | 0.17 | 129000 | 5.9 | 3.2 | 11.4 | 9100 | 2.8 | 75300 | 534 | | | 11 | 25.4 |
| BC-SSSB33-24 | 3770 | 1.5 | 31.4 | 0.21 | 84900 | 8 | 6.4 | 15.7 | 14900 | 3.3 | 40000 | 629 | 15.7 | 671 | 20.6 | 30.1 |
| BC-SSSB34-08 | 1730 | 1.1 | 9.3 | 0.1 | 126000 | 2.3 | | 7.8 | 3730 | 1.7 | 75900 | 171 | | 188 | 7.9 | |
| BC-SSSB35-13 | 2070 | 1.3 | 12 | 0.13 | 112000 | 2.7 | 2.8 | 12.6 | 5160 | 1.6 | 68300 | 182 | | 320 | 8.5 | |
| BC-SSSB35-30 | 2820 | 2 | 15.8 | 0.11 | 74600 | 5.7 | 3.3 | 9 | 6980 | 3.5 | 36400 | 217 | | 422 | 12 | |
| BC-SSSB36A-08 | 1860 | 1.1 | 10.2 | | 85900 | 4.9 | | 6.1 | 5390 | 17.5 | 48900 | 213 | | 314 | 8.4 | |
| BC-SSSB37-08 | 11600 | 4.4 | 74.1 | 1.1 | 47000 | 19.4 | | 12 | 17400 | 7.5 | 28800 | 554 | | 622 | 29.1 | 36.7 |
| BC-SSSB37-34 | 3220 | 2.4 | 14.5 | | 102000 | 3.6 | | 9.2 | 7090 | 3.4 | 47700 | 224 | | 644 | 11.5 | |
| BC-SSSB38-03 | 2620 | 1.2 | 32 | | 120000 | 3.8 | | 8 | 9300 | 1.8 | 68800 | 268 | | 591 | 12.8 | |
| BC-SSSB38-08 | 1240 | 1 | 5.4 | | 65800 | 3.1 | | 5.1 | 3800 | 1.4 | 27300 | 137 | | 242 | 6.4 | |
| **Foundary Sand Disposal Area** | | | | | | | | | | | | | | | | |
| BC-SSSB28-25 | 862 | 0.64 | 5.9 | | 28100 | 4.1 | | 3.2 | 2340 | 1.1 | 16300 | 106 | | 202 | 2.9 | |
| BC-SSSB28-32 | 7500 | 3.3 | 37.4 | 1 | 93800 | 10.2 | | 14.5 | 12800 | 7.3 | 42200 | 306 | | 1340 | 17.9 | 51.6 |
| BC-SSSB29-28 | 1460 | 0.67 | 7.5 | | 38700 | 6.1 | | 4.9 | 5410 | 1.4 | 18200 | 95.8 | | 279 | 8.5 | |
| **Storage Yard Area** | | | | | | | | | | | | | | | | |
| BC-SSSB26-08 | 1750 | 1.1 | 11.9 | | 113000 | 5.1 | | 8.9 | 4320 | 17.5 | 62400 | 238 | | 351 | 8.1 | |
| BC-SSSB27-10 | 1920 | | 9.8 | | 63500 | 3.7 | 2.4 | | 5110 | 1.9 | 29600 | 138 | | | 8.7 | 16.6 |

This table presents a summary of TCL metals detected in soil boring samples collected in Phase II of the Beloit Corporation RI/FS.

Results are presented in units of mg/kg. A blank indicates the compound was not detected in that sample.
Refer to Appendix C for complete analytical reports.

Footnotes:
(1) Depth sample collected from is 21.5 to 23.5 ft.

**TABLE 3-5**
**Results For Field Volatile Organics Screening - Groundwater Quality Borings**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | Depth | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| W30C GW | 39 ft | | 200 | < | | | 13 | | | 9.6 | | | | | |
| W30C GW | 49 ft | | 47 | | | | 12 | | | 18 | | | | | |
| W30C GW | 54 ft | ND | | | | | | | | | | | | | |
| W30C GW | 59 ft | ND | | | | | | | | | | | | | |
| W30C GW | 69 ft | ND | | | | | | | | | | | | | |
| W31C GW | 39 ft | ND | | | | | | | | | | | | | |
| W31C GW | 49 ft | | 85 | | < | | | | | 8.1 | | | | | |
| W31C GW | 59 ft | | 26 | | | | | | | < | | | | | |
| W31C GW | 69 ft | ND | | | | | | | | | | | | | |
| W32C GW | 34 ft | ND | | | | | | | | | | | | | |
| W32C GW | 39 ft | ND | | | | | | | | | | | | | |
| W32C GW | 49 ft | ND | | | | | | | | | | | | | |
| W32C GW | 59 ft | ND | | | | | | | | | | | | | |
| W32C GW | 69 ft | ND | | | | | | | | | | | | | |
| W32C GW | 79 ft | ND | | | | | | | | | | | | | |
| W33C GW | 29 ft | | 9.8 | | | | | | | | | | | | |
| W33C GW | 39 ft | | 240 | | 12 | | | | | 80 | | | | | |
| W33C GW | 49 ft | | 5.2 | | | | | | | | | | | | |
| W33C GW | 56 ft | ND | | | | | | | | | | | | | |
| W33C GW | 69 ft | ND | | | | | | | | | | | | | |
| W34C GW | 34 ft | | 20 | | | | | | | | | | | | |
| W34C GW | 39 ft | | 19 | | | | | | | | | | | | |
| W34C GW | 49 ft | | 7.3 | | < | | | | | 7.5 | | | | | |
| W34C GW | 59 ft | | | | | | | | | < | | | | | |
| W34C GW | 69 ft | ND | | | | | | | | | | | | | |
| W34C GW | 79 ft | ND | | | | | | | | | | | | | |
| W34C GW | 84 ft | ND | | | | | | | | | | | | | |
| W35C GW | 34 ft | | 5.3 | | | | | | | | | | | | |
| W35C GW | 39 ft | ND | | | | | | | | | | | | | |
| W35C GW | 49 ft | ND | | | | | | | | | | | | | |
| W35C GW | 59 ft | | < | | | | | | | 8.7 | | | | | |
| W35C GW | 69 ft | | | | 9.0 | | | | | 47 | | | | | |
| W35C GW | 79 ft | ND | | | | | | | | | | | | | |
| W35C GW | 85 ft | ND | | | | | | | | | | | | | |

**TABLE 3-5**
**Results For Field Volatile Organics Screening - Groundwater Quality Borings**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | | Alkenes | | | | | Alkanes | | | Aromatics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Depth** | | PCE | TCE | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | 1,1,1-TCA | 1,1-DCA | 1,2-DCA | Benzene | Toluene | Ethyl Benzene | M+P Xylene | O-Xylene |
| W36C GW | 29 ft | | 680 | | | | | | | | | | | | |
| W36C GW | 39 ft | | 2000 | | | | | | | | | | | | |
| W36C GW | 49 ft | | 8.6 | | | | < | | | | | | | | 8 |
| W36C GW | 59 ft | | | | | | | | | < | | | | | |
| W36C GW | 70.5 ft | | | | | | | | | 7.9 | | | | | |
| W36C GW | 77.5 ft | ND | | | | | | | | | | | | | |

This table presents the results of the field Gas Chromatograph (GC) volatile organic compound analysis of groundwater quality boring samples collected June 26 to July 11, 1994 at the Beloit Corporation Blackhawk Facility.

Results are presented in ug/L.

ND indicates target compounds were not detected at a concentration greater than the method reporting limit of 5 ug/L for water samples.

< Indicates the compound was present at a concentration less than the method reporting limit.
Concentrations greater than 50 times the method reporting limit indicate a dilution was required for the sample.

All data generated by field GC is considered as tentatively identified, with concentration being estimated.

# TABLE 3-6

**Summary of Organic Compounds Detected in Groundwater Quality Boring Samples**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| SAMPLEID | Tetrachloroethene | 1,1,1-Trichloroethane |
|---|---|---|
| BC-GWW36C-39 | 2500 | |
| BC-GWW36C-70 (1) | | 7 |
| BC-GWW36C-78 (2) | | |
| BC-GWTB01-01 | | |

This table presents a summary of TCL organics detected in a groundwater quality boring sample collected in Phase II of the Beloit Corporation RI/FS.

Results are presented in units of ug/L. A blank indicates the compound was not detected in that sample.
Refer to Appendix C for complete analytical reports.

Footnotes:
(1) Depth sample collected from is 70.5 ft.
(2) Depth sample collected from is 77.5 ft.

# TABLE 3-7

**Summary of Organic Compounds Detected in Surface Soil Samples**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | VOC | SVOCs | | | | | | | | | | | | | | | PEST/PCBs | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Toluene | Acenaphthene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Carbazole | Chrysene | Dibenzofuran | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Total PAHs | Aldrin | 4,4'-DDT | Aroclor-1254 | Aroclor-1260 |
| **Storage Yard Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB26-00 | | | | | | | | | | | | | | | | | | | | 54 | |
| BC-SSSB27-00 | | | | | | | | | | | | | | | | | | 1.8 | | 39 | |
| BC-SSSSS01-01 | | | | | | | | | | 47 | | 59 | | | | 47 | 153 | | | | |
| **Foundary Sand Disposal Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS02-01 | 2 | 230 | 460 | 1,000 | 1,000 | | 540 | 1,400 | 160 | 1,400 | 95 | 2,400 | 190 | 570 | 1,600 | 1,800 | 12,845 | | | | |
| BC-SSSSS03-01 | 6 | | 69 | 580 | 840 | 900 | 770 | 840 | | 940 | | 960 | | 700 | 310 | 760 | 7,669 | | | | 42 |
| BC-SSSSS04-01 | | | | 38 | 46 | 47 | | 52 | | 65 | | 83 | | | | 67 | 398 | | | | |
| BC-SSSSS04-01D | | | | | | | | | | 41 | | 45 | | | | 40 | 126 | | | | |
| BC-SSSSS05-01 | | | | 150 | 240 | 350 | 170 | 240 | | 240 | | 220 | | 180 | 60 | 190 | 2,040 | | | | |
| BC-SSSSS06-01 | | 170 | 270 | 670 | 610 | 630 | 280 | 510 | 190 | 970 | 60 | 1,900 | 150 | 320 | 1,200 | 1,300 | 9,230 | | | | |
| **Fiberous Sludge Spreading Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS07-01 | | | | | | | | | | | | | | | | | | | 3.2 | | |
| BC-SSSSS07-01D | | | | | | | | | | | | | | | | | | | 2.3 | | |
| BC-SSSSS08-01 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS09-01 | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS10-01 | | | | | | | | | | | | | | | | | | | | 100 | |
| BC-SSSSS11-01 | | | | | | | | | | | | | | | | | | | | 42 | |

This table presents a summary of TCL organics detected in surface soil samples collected in Phase II of the Beloit Corporation RI/FS.

Results are presented in units of ug/kg. A blank indicates the compound was not detected in that sample.
Background surface soil samples were not analyzed for TCL parameters.
Refer to Appendix C for complete analytical reports.

# TABLE 3-8

**Summary of Metals Detected in Surface Soil Samples**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| SAMPLE ID | Aluminum | Antimony | Arsenic | Barium | Beryllium | Cadmium | Calcium | Chromium, total | Cobalt | Copper | Cyanide | Iron | Lead | Magnesium | Manganese | Nickel | Mercury | Potassium | Selenium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Background** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS12-01 | 4700 | | 2.1 | 98.6 | | 0.82 | 2220 | 7.3 | 2.7 | 7.5 | | 7790 | 23.1 | 948 | 510 | 7.4 | | | | 14 | 40.6 |
| BC-SSSSS13-01 | 3460 | | 1.4 | 47.6 | | | 1170 | 4.1 | | 4.9 | | 4340 | 19.9 | 584 | 229 | 2.6 | | | | 7.9 | 23.4 |
| BC-SSSSS14-01 | 4110 | | 3.9 | 74.2 | | | 2450 | 5.2 | 2.2 | 6.3 | | 4960 | 19.1 | 1180 | 270 | 4.1 | | | | 9.7 | 21.4 |
| BC-SSSSS15-01 | 4790 | | 1.6 | 73 | | | 1160 | 6.1 | 2.4 | 5.3 | | 6300 | 18.2 | 866 | 310 | 4.2 | | | | 12.1 | 24.6 |
| BC-SSSSS16-01 | 8100 | | 2.4 | 93.6 | | | 1900 | 10.3 | 4.5 | 8.9 | | 11200 | 16.5 | 1450 | 500 | 7.4 | | | | 19.6 | 34.1 |
| **Average Bkgrd** | 5032 | | 2.3 | 77 | | 0.82 | 1780 | 6.6 | 3.0 | 6.6 | | 6918 | 19.4 | 1006 | 364 | 5.1 | | | | 12.7 | 28.8 |
| **Avg. + 2SD** | 8624 | | 4.3 | 118 | | | 2969 | 11.4 | 5.1 | 9.9 | | 12391 | 24.2 | 1660 | 628 | 9.5 | | | | 21.7 | 45.2 |
| **Storage Yard Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSB26-00 | 496 | | 0.9 | 9.8 | 0.21 | | **198000** | 1.9 | 1.6 | | | 3320 | 8.8 | **129000** | 297 | | | 202 | | 3.8 | 19.7 |
| BC-SSSB27-00 | 7270 | | 3.1 | 110 | 0.48 | | 1320 | 9.2 | **5.4** | 8.7 | | 10700 | 13.2 | 1170 | 605 | | | 269 | **0.35** | 20.2 | 39.2 |
| BC-SSSSS01-01 | 520 | | 0.93 | 6 | 0.23 | | **203000** | 2.4 | | 5.7 | | 3420 | 10.8 | **131000** | 261 | | | 232 | | 4.3 | 20.9 |
| **Foundary Sand Disposal Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS02-01 | 2660 | **7.8** | 0.45 | 20.5 | 0.29 | | **131000** | **63.2** | 4.2 | **1550** | | 9580 | 12.3 | **82000** | 292 | **65.9** | | 452 | | 8.7 | **130** |
| BC-SSSSS03-01 | 5610 | | 2.1 | 92.6 | 0.4 | | **6130** | **13.9** | 4.5 | **11.7** | | 7970 | 11.9 | **2980** | 542 | **12.2** | | 578 | | 13.8 | 38.6 |
| BC-SSSSS04-01 | 5790 | | 2.2 | 73.1 | 0.34 | | **10700** | 7.3 | 4.7 | 7.3 | | 8340 | 9.7 | **6630** | 410 | | | 387 | | 15.2 | 31.9 |
| BC-SSSSS04-01D | 6260 | | 2.1 | 73.6 | 0.29 | | **11200** | 9.2 | 3.4 | 7.5 | **0.62** | 8070 | 12.8 | **5780** | 368 | | | 367 | **0.29** | 14.9 | 43.9 |
| BC-SSSSS05-01 | 6320 | **8.7** | 2.9 | 63.3 | 0.33 | | **6770** | **12.8** | 4.4 | 7.3 | **0.81** | 9280 | 7.7 | **3460** | 389 | **14.9** | | 261 | | 16.2 | 22.7 |
| BC-SSSSS06-01 | **11100** | | **5.1** | 75.6 | 0.53 | | **5680** | **13.7** | **6.9** | **10.7** | | **15700** | 9.3 | **4160** | 521 | **14.3** | | 522 | | **26.2** | 31 |
| **Fiberous Sludge Spreading Area** | | | | | | | | | | | | | | | | | | | | | |
| BC-SSSSS07-01 | 6960 | | 2.1 | **126** | 0.42 | | 2190 | 9.3 | **5.8** | 8.7 | **0.64** | 10200 | 13.4 | 1410 | **666** | | | 516 | **0.26** | 18.9 | 35.4 |
| BC-SSSSS07-01D | 8050 | | 2.6 | **128** | 0.48 | | 2360 | 10.3 | **5.7** | 9.4 | | 10700 | 12.9 | 1530 | **655** | | | 576 | | 19.3 | 37.6 |
| BC-SSSSS08-01 | 7450 | | 3.5 | 107 | 0.48 | | 2040 | 10.6 | **5.4** | 9.5 | **0.94** | 11600 | 14.1 | 1410 | 628 | **12.4** | | 445 | **0.31** | 21.6 | 33.6 |
| BC-SSSSS09-01 | 8300 | | 3.8 | 118 | 0.62 | | 2090 | 12 | **6.4** | 9.3 | **0.71** | 12300 | 17.8 | 1440 | **675** | | | 548 | | 23 | 36.7 |
| BC-SSSSS10-01 | 4000 | | 1.6 | 41.1 | 0.29 | 0.56 | **22700** | 6.3 | 3.9 | **12.1** | | 6140 | 6.9 | **13400** | 231 | | **0.16** | 316 | | 12.7 | 28.4 |
| BC-SSSSS11-01 | 6780 | | 2.6 | 82.2 | 0.46 | | **13700** | 10.6 | **5.8** | **13.6** | | 10200 | 11.1 | **7920** | 491 | | **0.39** | 446 | | 20.2 | 39.7 |

This table presents a summary of TCL metals detected in surface soil samples collected in Phase II of the Beloit Corporation RI/FS.

Results are presented in units of mg/kg. A blank indicates the compound was not detected in that sample.
Refer to Appendix C for complete analytical reports.

Bolded values indicate an exceedance of the Avg.+2SD value for background samples. Validated background data for beryllium and potassium were qualified undetected (with elevated detection limits) due to detects found in the laboratory blanks. The unvalidated beryllium background data had an average concentration of 0.29 mg/kg (Avg.+2SD = 0.58 mg/kg). The unvalidated potassium background data had an average concentration of 439 mg/kg (Avg.+2SD = 712 mg/kg). Both selenium and antimony had some values qualified as unusable due to unacceptable QC.

# TABLE 3-9

**Summary of Organic Compounds Detected in Groundwater**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | Alkanes | | | | Alkenes | | | | | SVOCs | | | | | PEST/PCBs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Screen placement | 1,1,1-Trichloroethane | 1,1-Dichloroethane | 1,2-Dichloroethane | Chloromethane | Tetrachloroethene | Trichloroethene | 1,1-Dichloroethene | 1,2-Dichloroethene (total) | Carbon disulfide | Phenol | bis(2-ethylhexyl)phthalate | Di-n-butylphthalate | Dimethylphthalate | Diethylphthalate | Endrin aldehyde | Heptachlor |
| BC-GWG103D-01 | I | | | | | | | | | | | | | | | | |
| BC-GWG103D-02 | I | | | | | | 4 | | | | | | | | | | |
| BC-GWG103S-01 | S | | | | | | | | | | | | | | | | |
| BC-GWG103S-02 | S | | | | | | | | | | | | | | | | |
| BC-GWG104-01 | S | 24 | 15 | | | 4 | 2 | | | | | | | | | | |
| BC-GWG104-02 | S | | | | | 3 | | | | | | | | | | | |
| BC-GWG108D-01 | I | | | | | | | | | | | | | | | | |
| BC-GWG108D-02 | I | | | | 18 | | | | | | | | | | | | |
| BC-GWG108D-92 | I | | | | | | | | | | | | | | | | |
| BC-GWG108S-02 | S | | | | | | | | | | | | | | | | |
| BC-GWG109-01 | S | 5 | 3 | | | | | | | | | | | | | | |
| BC-GWG109-02 | S | 5 | | | | | | | | | | | | | | | |
| BC-GWG110-01 | S | | | | | | | | | | | | | | | 0.003 | |
| BC-GWG110-91 | S | | | | | | | | | | | | | | | 0.003 | |
| BC-GWG110-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW01R-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW03R-01 | S | 6 | 1 | | | **5** | | | | | | | | | | | |
| BC-GWW03R-02 | S | | | | | **8** | | | | | | | | | | | |
| BC-GWW05R-01 | I | 45 | 7 | | | **12** | 3 | 3 | | | | | | | | | |
| BC-GWW05R-02 | I | 34 | 3 | | | **33** | **9** | | 3 | | | | | | | | |
| BC-GWW12-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW12R-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW13-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW13-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW14-01 | I | | | | | | | | | | | | | | | 0.004 | |
| BC-GWW14-02 | I | | | | | | | | | | | | | | | | |
| BC-GWW15-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW15-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW16R-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW16R-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW17-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW17-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW18-01 | D | 4 | | | | | **24** | | | | | | | | | | |
| BC-GWW18-91 | D | 4 | | | | | **20** | | | | | | | | | | |
| BC-GWW18-02 | D | 8 | | | | | **36** | | | | | | | | | | |

# TABLE 3-9
## Summary of Organic Compounds Detected in Groundwater

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | | Alkanes | | | | Alkenes | | | | | SVOCs | | | | | PEST/PCBs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Screen placement | 1,1,1-Trichloroethane | 1,1-Dichloroethane | 1,2-Dichloroethane | Chloromethane | Tetrachloroethene | Trichloroethene | 1,1-Dichloroethene | 1,2-Dichloroethene (total) | Carbon disulfide | Phenol | bis(2-ethylhexyl)phthalate | Di-n-butylphthalate | Dimethylphthalate | Diethylphthalate | Endrin aldehyde | Heptachlor |
| BC-GWW19-01 | S | 2 | | | | | | | | | | | | | | | |
| BC-GWW19-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW19B-01 | I | | | | | | | | | | | | | | | | |
| BC-GWW19B-02 | I | | | | | | | | | | | | | | | | |
| BC-GWW20R-01 | S | 16 | | | | | | | 9 | | | | | | | | |
| BC-GWW20R-02 | S | 8 | | | | **24** | **12** | | | | | | | | | | |
| BC-GWW20B-01 | I | 8 | | | | **6** | **5** | | | | | | | | | 0.002 | |
| BC-GWW20B-02 | I | 20 | | | | | | | 33 | | | | | | | | |
| BC-GWW20B-91 | I | 19 | 1 | | | 1 | | 1 | 10 | | | | | | | 0.003 | |
| BC-GWW21-01 | S | 22 | 2 | | | **31** | **19** | | | | | | | | | | |
| BC-GWW21-02 | S | 17 | | | | **90** | **23** | | | | | | | | | | |
| BC-GWW21B-01 | I | 25 | | | | | 2 | | | | | | | | 1 | 0.004 | |
| BC-GWW21B-02 | I | 160 | | | | | **16** | **26** | | | | | | | | | |
| BC-GWW22-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW22-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW22B-01 | I | | | | | | | | | 2 | | | | | | 0.003 | |
| BC-GWW22B-02 | I | | | | | | | | | | | | | | | | |
| BC-GWW22B-92 | I | | | | | | | | | | | | | | | | |
| BC-GWW22C-01 | D | | | | | | | | | | | | | | | 0.005 | |
| BC-GWW22C-02 | D | | | | | | | | | | | | | | | | |
| BC-GWW23-01 | S | | | | | **3,000** | | | | | | | | | | | |
| BC-GWW23-02 | S | | | | | **4,300** | | | | | | | | | | | |
| BC-GWW23B-01 | I | 47 | | 320 | | **970** | **33** | | | | | | 1 | | 2 | | |
| BC-GWW23B-02 | I | | | | | **1,600** | **60** | | **480** | | | | | | | | |
| BC-GWW25C-01 | D | 10 | | | | | 1 | | | | | | | | | | |
| BC-GWW25C-02 | D | 110 | | | | **11** | 4 | **8** | | | | | | | | | |
| BC-GWW26-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW26-92 | S | | | | | | | | | | | | | | | | |
| BC-GWW26C-01 | D | 16 | | | | | **61** | | | | | | 1 | 1 | 2 | | 0.16 |
| BC-GWW26C-02 | D | 50 | | | | | **160** | 3 | | | | | | | | | |
| BC-GWW27-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW28-02 | S | | | | 11 | | | | | | | | | | | | |
| BC-GWW29-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW31C-02 | I | 9 | | | | **60** | | | 2 | | | | | | | | |
| BC-GWW32-02 | S | | | | | | | | | | | | | | | | |

# TABLE 3-9

## Summary of Organic Compounds Detected in Groundwater

### Beloit Corporation - Blackhawk Facility
### Remedial Investigation / Feasibility Study - Phase II

| | | Alkanes | | | | Alkenes | | | | | SVOCs | | | | | PEST/PCBs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Screen placement | 1,1,1-Trichloroethane | 1,1-Dichloroethane | 1,2-Dichloroethane | Chloromethane | Tetrachloroethene | Trichloroethene | 1,1-Dichloroethene | 1,2-Dichloroethene (total) | Carbon disulfide | Phenol | bis(2-ethylhexyl)phthalate | Di-n-butylphthalate | Dimethylphthalate | Diethylphthalate | Endrin aldehyde | Heptachlor |
| BC-GWW34-02 | S | | | | | **23** | | | | | | | | | | | |
| BC-GWW34-92 | S | | | | | **20** | | | | | | | | | | | |
| BC-GWW35C-02 | I | 40 | | | | 3 | | | | | | | | | | | |
| BC-GWW37-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW38-02 | S | | | | 81 | **370** | | | | | | | | | | | |
| BC-GWW39-02 | S | | | | | **29** | | | | | | | | | | | |
| BC-GWW40-02 | S | 7 | | | | **6** | | | | | | | | | | | |
| BC-GWW41-02 | S | 18 | | | | **130** | | | | | 2 | | | | | | |
| **Background Wells** | | | | | | | | | | | | | | | | | |
| BC-GWW08R-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW08R-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW11R-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW11R-02 | S | | | | | | | | | | | | | | | | |
| BC-GWW11R-92 | S | | | | | | | | | | | | | | | | |
| BC-GWW24-01 | S | | | | | | | | | | | | | | | | |
| BC-GWW24-02 | S | | | | | | | | | | | | | | | | |
| BC-GWG107-01 | S | | | | | | | | | | | | | | | | |
| BC-GWG107-91 | S | | | | | | | | | | | | | | | | |
| BC-GWG107-02 | S | | | | | | | | | | | | | | | | |
| BC-GWFB01-01 | | | | | | | | | | | | 4 | | | | | |
| BC-GWFB02-01 | | | | | | | | | | | | 7 | | | | | |
| BC-GWFB03-01 | | | | | | | | | | | | | 2 | | | | |

This table presents a summary of all organic compounds detected in groundwater samples collected in Phases I and II of the Beloit Corporation RI/FS. Both rounds are presented to allow comparison of results over time. Only those volatiles, semivolatiles, and pesticide/PCB compounds detected in at least one sample are included here.

Screen Placement indicates Shallow (S), Intermediate (I), or Deep (D) wells.

Results are presented in units of ug/L. A blank indicates the compound was not detected in that sample. Shading indicates the sample was not analyzed for that fraction. Refer to Appendix C for complete analytical reports.

# TABLE 3-10
**Summary of Metals Detected in Groundwater**

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | Screen Placement | Aluminum | Antimony | Barium | Cadmium | Calcium | Cobalt | Copper | Iron | Magnesium | Manganese | Mercury | Nickel | Potassium | Sodium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BC-GWW01R-02 | S | | | 39.6 | | 92,900 | | | 33.3 | 42,400 | | | | 1,700 | 34,200 | |
| BC-GWW03R-02 | S | | | 29.3 | | 72,400 | | **13.4** | | 31,300 | | **0.32** | | | 8,340 | **46.7** |
| BC-GWW12R-02 | S | | | **75.7** | | 70,100 | | 3.5 | | 28,600 | | | | 1,410 | 4,780 | 3.5 |
| BC-GWW14-02 | I | | | 17.1 | | 78,600 | | | 28.3 | 30,100 | 15.3 | | 251 | 1,210 | 30,600 | |
| BC-GWW15-02 | S | | | **135** | **5.8** | **153,000** | **4.9** | | 32.4 | **68,500** | 39.7 | | 304 | **5,370** | **298,000** | 1.8 |
| BC-GWW20B-02 | I | | | 13.3 | | 71,500 | | | | 34,700 | 24.1 | | | | 2,170 | **43.4** |
| BC-GWW26-02 | S | | | 35.0 | | 69,300 | | 2.9 | | 32,700 | | | | 482 | 3,250 | |
| BC-GWW26-92 | S | | | 33.7 | | 69,800 | | | 26.2 | 32,600 | | | | 463 | 3,530 | |
| BC-GWW31C-02 | I | | | **96.8** | | 94,400 | | 3.6 | | 45,700 | 30.8 | | 13.2 | 1,610 | 19,800 | |
| BC-GWW32-02 | S | **126** | | **112** | | 91,500 | | | 217 | 46,700 | 30.4 | | | 2,040 | 5,530 | |
| BC-GWW34-02 | S | | | **139** | | 128,000 | | 4.4 | | **66,200** | | | 35.7 | 1,830 | 56,000 | |
| BC-GWW35C-02 | I | | | **76.4** | | 90,800 | | | 33.0 | 48,200 | 28.2 | | 8.6 | 2,590 | 14,900 | |
| BC-GWW39-02 | S | | | **106** | **2.4** | 86,100 | | | | 32,500 | | | | 2,180 | 8,710 | |
| BC-GWW40-02 | S | | | **80.2** | | 69,200 | | | | 41,900 | 36.7 | | | 3,880 | 10,300 | |
| BC-GWW41-02 | S | | | 72.9 | | 75,200 | | | | 23,600 | | | | 987 | 6,690 | |
| **Background** | | | | | | | | | | | | | | | | |
| BC-GWW08R-02 | S | | | 38.2 | | 94,300 | | 3.8 | | 38,300 | 28.1 | | 56.4 | 1,100 | 113,000 | 3.3 |
| BC-GWW11R-02 | S | | | 32.5 | | 96,300 | | | 423 | 39,800 | 82.0 | | 591 | 1,110 | 104,000 | 2.3 |
| BC-GWW11R-92 | S | | | 29.8 | | 94,700 | | | 347 | 39,200 | 75.6 | | 573 | 1,000 | 104,000 | 1.8 |
| BC-GWW24-02 | S | 60.7 | | 69.7 | | 126,000 | | | 47.9 | 59,800 | | | | 3,950 | 6,490 | |
| BC-GWG107-02 | S | | | 26.8 | | 73,100 | | 4.8 | | 39,400 | 34.4 | | 98.9 | | 6,050 | |
| Average | | 60.7 | | 39.4 | | 96,880 | | 4.3 | 273 | 43,300 | 55.0 | | 330 | 1,790 | 66,708 | 2.5 |
| Avg+2SD | | | | 74.3 | | 134,632 | | 5.7 | 669 | 61,780 | 110.4 | | 913 | 4,672 | 177,297 | 4.0 |

This table presents a summary of metals detected in groundwater samples collected in Phase II of the Beloit Corporation RI/FS.

Results are presented in units of ug/L. A blank indicates the compound was not detected in that sample.
Refer to Appendix C for complete analytical reports.

# TABLE 3-11
## Summary of Indicator Parameters Detected in Groundwater

### Beloit Corporation - Blackhawk Facility
### Remedial Investigation / Feasibility Study - Phase II

| | Screen placement | Alkalinity, Bicarbonate | Alkalinity, Total | Chloride | Nitrate+Nitrite Nitrogen | Nitrogen, Ammonia | Phenolics, Total | Sulfate | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|
| BC-GWW01R-02 | S | 340 | 340 | 69.6 | | | | 20.9 | 496 |
| BC-GWW03R-01 | S | | 343 | 2.0 | 0.78 | | | 20.0 | 346 |
| BC-GWW05R-01 | I | | 260 | 5.0 | 1.11 | | | 30.0 | 298 |
| BC-GWW12R-02 | S | 275 | 275 | | | | | 26.3 | 313 |
| BC-GWW13-01 | S | | 341 | 3.0 | 11.60 | | | | 432 |
| BC-GWW14-01 | I | | 328 | 71.0 | 4.56 | | | 28.0 | 512 |
| BC-GWW15-01 | S | | 319 | 1100.0 | 0.33 | | | 56.0 | 2,410 |
| BC-GWW15-02 | S | 356 | 356 | 642.0 | | | | 56.8 | 1,400 |
| BC-GWW16R-01 | S | | 333 | 4.0 | 0.48 | | | | 338 |
| BC-GWW17-01 | S | | 388 | 4.0 | 0.21 | | | 25.0 | 384 |
| BC-GWW18-01 | D | | 260 | 4.0 | 1.48 | | | 47.0 | 328 |
| BC-GWW18-91 | D | | 260 | 4.0 | 1.60 | | | 43.0 | 336 |
| BC-GWW19-01 | S | | 284 | 15.0 | 8.70 | | | | 360 |
| BC-GWW19B-01 | I | | 341 | 34.0 | 0.03 | | | | 412 |
| BC-GWW20R-01 | S | | 384 | 3.0 | 0.73 | | | | 396 |
| BC-GWW20B-01 | I | | 321 | 6.0 | 0.21 | | | | 346 |
| BC-GWW20B-91 | I | | 327 | 6.0 | 0.19 | | | | 348 |
| BC-GWW21-01 | S | | 299 | 6.0 | 1.49 | | | 17.0 | 324 |
| BC-GWW21B-01 | I | | 267 | 4.0 | 0.22 | | | 25.0 | 306 |
| BC-GWW22-01 | S | | 353 | 2.0 | 0.48 | | | 23.0 | 382 |
| BC-GWW22B-01 | I | | 354 | | 1.05 | | 0.02 | 24.0 | 384 |
| BC-GWW22C-01 | D | | 305 | | 1.24 | | 0.012 | 25.0 | 340 |
| BC-GWW23-01 | S | | 420 | 56.0 | 1.24 | | | 134.0 | 776 |
| BC-GWW23B-01 | I | | 403 | 7.0 | 4.17 | | | 30.0 | 470 |
| BC-GWW25C-01 | D | | 261 | 4.0 | 1.16 | | | 33.0 | 502 |
| BC-GWW26-02 | S | 293 | 293 | | | | | 14.1 | 321 |
| BC-GWW26-92 | S | 293 | 293 | | | | | 13.8 | 319 |
| BC-GWW26C-01 | D | | 256 | 3.0 | 0.70 | | | 45.0 | 332 |
| BC-GWW31C-02 | I | 286 | 286 | 55.9 | | | | 72.6 | 504 |
| BC-GWW32-02 | S | 358 | 358 | 5.4 | | | | 33.6 | 448 |
| BC-GWW34-02 | S | 421 | 421 | 132.0 | | | | 76.0 | 786 |
| BC-GWW35C-02 | I | 264 | 264 | 103.0 | | | | 28.2 | 600 |
| BC-GWW39-02 | S | 265 | 265 | 23.1 | | | | 61.4 | 428 |
| BC-GWW40-02 | S | 310 | 310 | 25.7 | | | | 25.0 | 384 |
| BC-GWW41-02 | S | 299 | 299 | 7.1 | | | | 9.6 | 344 |
| BC-GWG103D-01 | I | | 236 | 3.0 | 3.92 | | | 24.0 | 286 |
| BC-GWG104-01 | S | | 345 | 6.0 | 2.15 | | | | 406 |
| BC-GWG108D-01 | I | | 275 | 59.0 | 5.18 | | | 34.0 | 454 |

# TABLE 3-11
## Summary of Indicator Parameters Detected in Groundwater

**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study - Phase II**

| | Screen placement | Alkalinity, Bicarbonate | Alkalinity, Total | Chloride | Nitrate+Nitrite Nitrogen | Nitrogen, Ammonia | Phenolics, Total | Sulfate | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|
| BC-GWG109-01 | S | | 322 | 24.0 | 0.65 | | | | 384 |
| BC-GWG110-01 | S | | 332 | 40.0 | 1.37 | | | | 418 |
| BC-GWG110-91 | S | | 328 | 40.0 | 1.47 | | | | 412 |
| **Background Wells** | | | | | | | | | |
| BC-GWW08R-01 | S | | 272 | 86.0 | 1.25 | | | 19.0 | 430 |
| BC-GWW08R-02 | S | 303 | 303 | 221.0 | | | | 16.1 | 686 |
| BC-GWW11R-01 | S | | 259 | 59.0 | 1.83 | | | 25.0 | 370 |
| BC-GWW11R-02 | S | 296 | 296 | 225.0 | | | | 17.4 | 695 |
| BC-GWW11R-92 | S | 298 | 298 | 224.0 | | | | 17.3 | 675 |
| BC-GWW24-01 | S | | 452 | 12.0 | 5.01 | | | | 520 |
| BC-GWW24-02 | S | 500 | 500 | | | | | 49.4 | 584 |
| BC-GWG107-01 | S | | 355 | 31.0 | 1.58 | | | 27.0 | 408 |
| BC-GWG107-91 | S | | 353 | 30.0 | 1.46 | | | 28.0 | 414 |
| BC-GWG107-02 | S | 358 | 358 | 6.2 | | | | 25.6 | 400 |
| Average | | 351 | 345 | 99 | 2.23 | | | 25.0 | 518 |
| Avg+2SD | | 525 | 501 | 291 | 5.37 | | | 45.5 | 781 |

This table presents a summary of indicator parameters detected in groundwater samples collected in Phases I and II of the Beloit Corporation RI/FS. Both rounds are presented to allow comparison of results over time.

Results are presented in units of mg/L. A blank indicates the compound was not detected in that sample.
Refer to Appendix C for complete analytical reports.

# TABLE 3-12

**Results For Private Well Volatile Organics Analyses - Phase I & II**

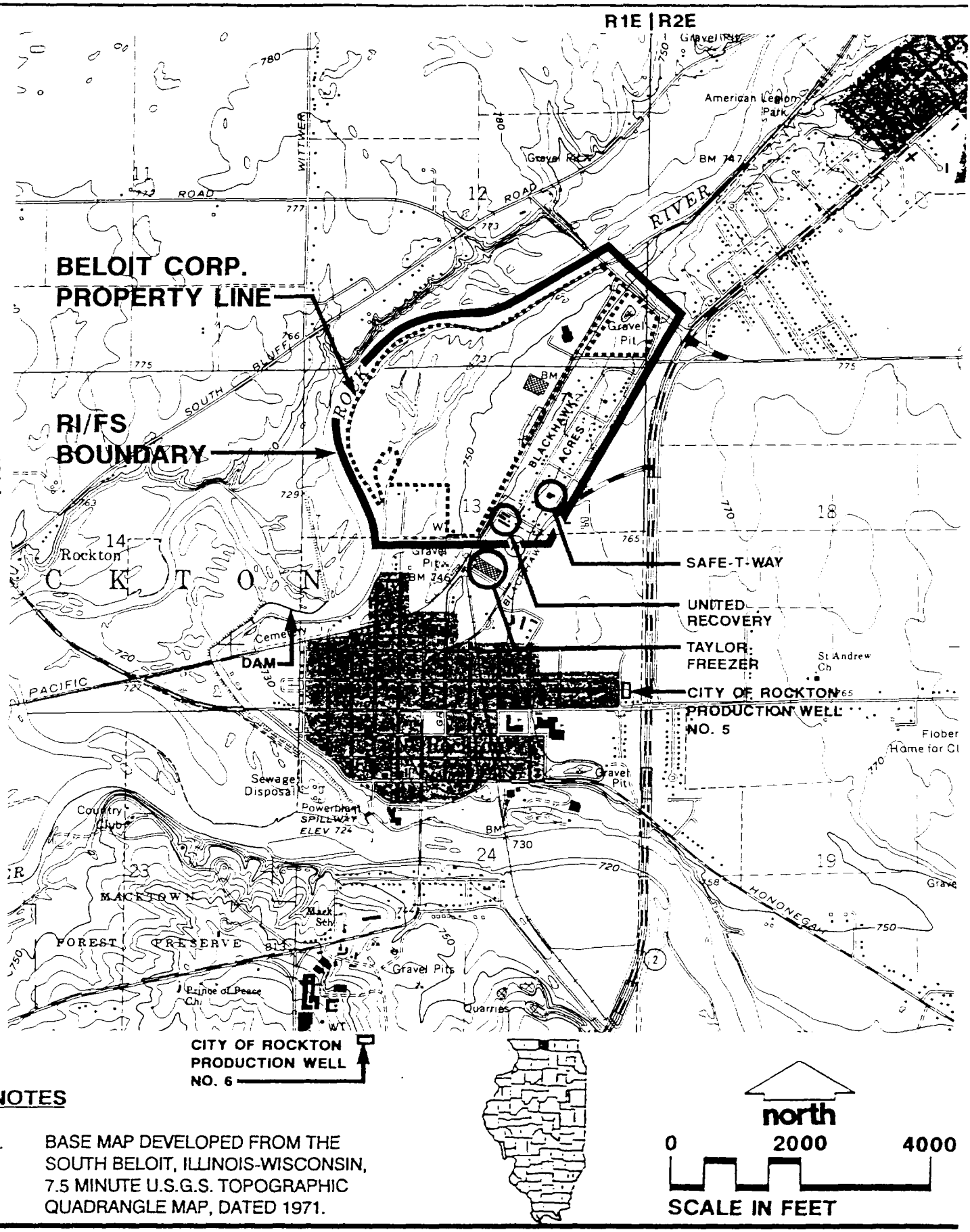
**Beloit Corporation - Blackhawk Facility**
**Remedial Investigation / Feasibility Study**

| Address | 1,1,1-Trichloroethane | | 1,1-Dichloroethane | | Chloromethane | | Tetrachloroethene | | Trichloroethene | | 1,1-Dichloroethene | | Chloroform | | 1,4-Dichlorobenzene | | Methylene chloride | | Dichlorodifluoromethane | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 908 Blackhawk | | | | | | | 0.7 | | | | | | | | | | | | | |
| 916 Blackhawk | | | 0.7 | | | | | | | | | | | | | | | | | |
| 1012 Blackhawk | 2 | 0.7 | 0.7 | | | | 0.7 | | 4 | 0.9 | | | | | | | | | | |
| 1102 Blackhawk | 9 | 7 | 3 | 2 | | | | | 14 | 13 | | | | | | | | | | |
| 1106 Blackhawk | | | | | | | | | | | | | | | | | | | | 14 |
| 1204 Blackhawk | | | | | | | | | | | | | 0.6 | | | | | | | |
| 1208 Blackhawk | | | | | | | | | | | | | 0.9 | | | | | | | |
| 1212 Blackhawk | | | | | | | | | | | | | 1 | | | | | | | |
| 1220 Blackhawk | | | | | | | | | | | | | 2 | 5 | | | | | | |
| 1310 Blackhawk | | | | | | | | | | | | | 10 | 14 | | | | | | |
| 1408 Blackhawk | | | | | | | | | | | | | | | | | | | | 0.9 |
| 407 Dingman | | | | | | | | | | | | | | | | | | | | 9 |
| 410 Kile | | | | | | | | | | | | | 2 | 2 | | | | | | |
| 416 Kile | | 0.9 | | | | | | | | | | | | | | | | | | |
| 905 Watts | | | | | 0.9 | | 0.5 | | | | | | 2 | 1 | | | | | | |
| 909 Watts | | | | | | | 2 | 2 | | | | | 2 | 3 | | | | | | |
| 910 Watts | 19 | 15 | | | | | 29 | 95 | 0.5 | | 2 | 2 | | | | | | | | |
| 914 Watts | 25 | 15 | | | | | 86 | 68 | | | 3 | 2 | | | | | | | | |
| 918 Watts | 9 | 0.8 | | | | | 9 | 22 | | | 1 | | | | | | | | | |
| 1004 Watts | 0.5 | | | | | | | | | | | | | | | | | | | |
| 1117 Watts | 1 | | 0.6 | | | | | | 3 | | | | | | | | | | | |
| 1200 Watts | | 1 | | | | | | | | | | | | | | | | | | |
| 1314 Watts | 0.8 | | | | | | | | 0.5 | | | | | | | | | 0.5 | | |
| 407 Central | | | | | | | 1 | | | | | | | | | | | | | |
| 900 N. Prairie | | | | | | | | | | | | | | | 0.6 | | | | | |

This table presents all volatile organic compounds detected during Phase I and Phase II at the Beloit Corporation - Blackhawk Facility RI/FS Site. The left column for each compound represents Phase I data, the right column Phase II.

All results in ug/L. A blank indicates the compound was not detected at concentrations greater than the laboratory reporting limit.

DRAWINGS




## NOTES

1. BASE MAP DEVELOPED FROM THE SOUTH BELOIT, ILLINOIS-WISCONSIN, 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP, DATED 1971.

Management Review — Other
Technical Review — Project Manager KJR 11-10-94
QUALITY CONTROL — Graphic Standards DLF 11-10-94 — Lead Professional RJR 11-10-94

| | | |
|---|---|---|
| Developed By: RJR | Drawn By: DLF | Drawing Number 10024910 A1 |
| Approved By: Kenneth Quinn | Date: 5/10/95 | |
| Reference: | | MONTGOMERY WATSON |
| Revisions: | | |

**SITE LOCATION MAP**

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
PHASE II
BELOIT CORPORATION BLACKHAWK FACILITY
SECTION 12 AND 13, T46N, R1E
TOWN OF ROCKTON, WINNEBAGO CO., ILLINOIS

WARZYN INC. N68995